



Mini size of Discrete semiconductor elements



Diode Rectifier

| | | | |
|---|--------------------------------------|-------|----|
| → | Schottky SOD-723 / SOD-523 / SOD-323 | ----- | P1 |
| → | TO-252 / TO263 | | |
| → | SOT-23-6 / TSSOP-8 / SOP-8 | | |
| → | mini-MELF / MELF | | |
| → | SMA / SMB / SMC | | |
| → | Switching SOT-523 / SOT-323 / SOT-23 | ----- | P2 |
| → | Bridge (Single phase / Three phase) | ----- | P3 |
| → | RF (low capacitance) & Varactor | ----- | P4 |



MOSFET

| | | | |
|---|----------------------------------|-------|----|
| → | SOT-323 | ----- | P5 |
| → | SOT-23 | | |
| → | TO-252 / TO-263 / TO-220 / TO-3P | ----- | P6 |
| → | TSSOP-8 / SOP-8 | | |



Regulator

| | | | |
|---|------------------------------------|-------|-----|
| → | Switching Regulator / Charger pump | ----- | P7 |
| → | DC-DC converter / PWM IC | ----- | P8 |
| → | Step-up/down (Boost / Buck) | | |
| → | LDO Regulator | ----- | P9~ |
| → | Ultra LDO Regulator | ----- | P11 |



Transistor (Digital)

| | | | |
|---|---|-------|------|
| → | SOT-323 / SOT-363 (Dual N , Dual P , P+N) | ----- | P12 |
| → | SOT-23 / SOT-89 | ----- | P13 |
| → | TO-252 / TO-263 | ----- | P14 |
| → | TO-92 / TO-220 / TO-3P | ----- | P15 |
| → | Triac / SCR / RF (1GHz ~) | | |
| → | Digital | ----- | P16~ |
| | | | P18 |



Reset IC

| | | | |
|---|-------------------|-------|-----|
| → | SOT-23 / SOT-23-5 | ----- | P19 |
| → | SOT-89 / TO-92 | | |

Logic IC

| | | | |
|---|----------------------|-------|-----|
| → | SOT-23-5 / SOT-323-5 | ----- | P20 |
| → | Standard | | |

EEPROM IC



Protection Device

| | | | |
|---|--|-------|-----|
| → | Sidac / Thyristor / EMI Filter | ----- | P21 |
| → | TVS / ESD Arrays / Varistor (chip) | ----- | P22 |
| → | Gastube arrester / 5~6 pin arrester | ----- | P23 |
| → | Polymer resetable fuse / Thermal switch & sensor | ----- | P24 |

Film Capacitor

| | | | |
|---|--|-------|-----|
| → | Class X1 / X2 Safety license (300Vac) | ----- | P25 |
| → | MPP / MPE / DMP (High current) | | |
| → | Minibox DC film cap. / X+Y combint cap. | ----- | P26 |
| → | Lighting film / AC starting film cap. | | |



Ceramic Cap.

| | | | |
|---|-------------------------------------|-------|-----|
| → | Class Y1 / Y2 Safety license | ----- | P27 |
| → | High voltage (1KV ~ 6KV) | | |
| → | Chip Capacitors & Multilayer (MLCC) | | |
| → | Tantalum Capacitors | | |



Package Outline Dimensions

----- P28 ~ P34

***Other Industrial specification (-20°C / -30°C / - 40°C ~ 85°C)**

Transistors

| Part Number | NPN or PNP | Maximum Ratings | | | | Electrical Characteristics (Ta=25°C) | | | | | | | fT MHz | PIN |
|-----------------------|------------|-----------------|--------------|------------|-----------------------|--------------------------------------|------|------------|------------|------------|------------|------------|-----------|------|
| | | BVCBO (V) | BVCEO (V) | IC (mA) | PD Ta=25°C (mW) | hFE | | | | VCE(sat) | | | | |
| | | | | | | Min | Max | IC (mA) | VCE (V) | Max (V) | IC (mA) | IB (mA) | | |
| SOT-323 (P.28) | | | | | | | | | | | | | | |
| BC846W | NPN | 80 | 65 | 100 | 225 | 110 | 800 | 2 | 5 | 0.25 | 10 | 0.5 | 300 | BCE |
| BC847W | NPN | 50 | 45 | 100 | 225 | 110 | 800 | 2 | 5 | 0.25 | 10 | 0.5 | 300 | BCE |
| MMBT2222AW | NPN | 75 | 40 | 600 | 225 | 100 | 300 | 150 | 10 | 0.5 | 380 | 10 | 300 | BCE |
| MMBT2907AW | PNP | -60 | -60 | -600 | 225 | 100 | 300 | -150 | -10 | -0.4 | -150 | -15 | 200 | BCE |
| MMBT3904W | NPN | 60 | 40 | 200 | 225 | 100 | 300 | 10 | 1 | 0.2 | 10 | 1 | 300 | BCE |
| MMBT3906W | PNP | -40 | -40 | -200 | 225 | 120 | 360 | -10 | -1 | 0.25 | -10 | -1 | 250 | BCE |
| *MMBT5401W | PNP | -160 | -150 | -600 | 225 | 60 | 240 | -10 | -5 | -0.2 | -10 | -1 | 100 | BCE |
| *MMBT5551W | NPN | 180 | 160 | 600 | 225 | 80 | 250 | 10 | 5 | 0.15 | 10 | 1 | 100 | BCE |
| SOT-363 (P.29) | | | | | | | | | | | | | | |
| MMDT2412 | N*2 | 50 | 40 | 150 | 200 | 120 | 820 | 1 | 6 | 0.4 | 1 | 5 | 180 | DAUL |
| MMDT3904 | N*2 | 60 | 40 | 200 | 200 | 100 | 300 | 10 | 1 | 0.2 | 10 | 1 | 300 | DAUL |
| MMDT2222 | N*2 | 75 | 40 | 600 | 200 | 100 | 300 | 150 | 10 | 0.5 | 150 | 10 | 300 | DAUL |
| MMDT2411 | N*2 | 40 | 40 | 600 | 200 | 82 | 560 | 100 | 3 | 0.4 | 100 | 10 | 300 | DAUL |
| MMDT1036 | P*2 | -40 | -32 | 500 | 200 | 100 | 300 | -150 | -10 | -0.4 | -150 | -15 | 200 | DAUL |
| MMDT1037 | P*2 | -60 | -50 | 150 | 200 | 120 | 820 | -1 | -6 | -0.5 | -1 | -5 | 140 | DAUL |
| MMDT3906 | P*2 | -40 | -40 | 200 | 200 | 100 | 300 | -10 | -1 | -0.25 | -10 | -1 | 250 | DAUL |
| MMDT2907 | P*2 | -60 | -60 | 600 | 200 | 100 | 300 | -150 | -10 | -0.4 | -150 | -15 | 200 | DAUL |
| MMDT2227 | N+P | 75 | 40 | 600 | 200 | 100 | 300 | 150 | 10 | 0.3 | 150 | 15 | 300 | N+P |
| | | -60 | -60 | 600 | 200 | 100 | 300 | -150 | -10 | -0.4 | -150 | -15 | 200 | |
| MMDT3946 | N+P | 60 | 40 | 200 | 200 | 100 | 300 | 10 | 1 | 0.2 | 10 | 1 | 300 | N+P |
| | | -40 | -40 | 200 | 200 | 100 | 300 | -10 | -1 | -0.25 | -10 | -1 | 250 | |
| SOT-23 (P.28) | | | | | | | | | | | | | | |
| BC807 | PNP | -50 | -45 | -800 | 225 | 100 | 630 | -100 | -1 | -0.7 | -500 | -50 | 100 | BCE |
| BC817 | NPN | 50 | 45 | 800 | 225 | 100 | 630 | 100 | 1 | 0.7 | 500 | 50 | 100 | BCE |
| BC846 | NPN | 80 | 65 | 100 | 225 | 110 | 800 | 2 | 5 | 0.25 | 10 | 0.5 | 300 | BCE |
| BC847 | NPN | 50 | 45 | 100 | 225 | 110 | 800 | 2 | 5 | 0.25 | 10 | 0.5 | 300 | BCE |
| BC848 | NPN | 30 | 30 | 100 | 225 | 110 | 800 | 2 | 5 | 0.25 | 10 | 0.5 | 300 | BCE |
| BC856 | PNP | -80 | -65 | -100 | 225 | 115 | 800 | -2 | -5 | -0.3 | -10 | -0.5 | 150 | BCE |
| BC857 | PNP | -50 | -45 | -100 | 225 | 110 | 800 | -2 | -5 | -0.3 | -10 | -0.5 | 150 | BCE |
| BC858 | PNP | -30 | -30 | -100 | 225 | 110 | 800 | -2 | -5 | -0.3 | -10 | -0.5 | 150 | BCE |
| BCW65C | NPN | 60 | 32 | 800 | 225 | 250 | 630 | 100 | 1 | 0.3 | 100 | 10 | 170 | BCE |
| MMBT1015 | PNP | -50 | -50 | -150 | 225 | 120 | 700 | -2 | -6 | -0.3 | -100 | -10 | 80 | BCE |
| MMBT1815 | NPN | 60 | 50 | 150 | 225 | 120 | 700 | 2 | 6 | 0.25 | 100 | 10 | 80 | BCE |
| MMBT2222A | NPN | 75 | 40 | 600 | 225 | 100 | 300 | 150 | 10 | 0.5 | 380 | 10 | 300 | BCE |
| MMBT2369 | NPN | 40 | 40 | 500 | 225 | 40 | 120 | 10 | 1 | 0.25 | 10 | 1 | 500 | BCE |
| MMBT2484 | NPN | 60 | 60 | 50 | 225 | 250 | - | 1 | 5 | 0.35 | 1 | 0.1 | | BCE |
| MMBT2907A | PNP | -60 | -60 | -600 | 225 | 100 | 300 | -150 | -10 | -0.4 | -150 | -15 | 200 | BCE |
| MMBT3904 | NPN | 60 | 40 | 200 | 225 | 100 | 300 | 10 | 1 | 0.2 | 10 | 1 | 300 | BCE |
| MMBT3906 | PNP | -40 | -40 | -200 | 225 | 120 | 360 | -10 | -1 | 0.25 | -10 | -1 | 250 | BCE |
| MMBT4124 | NPN | 30 | 25 | 200 | 225 | 120 | 360 | 2 | 1 | 0.3 | 50 | 5 | 300 | BCE |
| MMBT4125 | PNP | -30 | -30 | -200 | 225 | 50 | 150 | -2 | -1 | -0.4 | -50 | -5 | 200 | BCE |
| MMBT4401 | NPN | 60 | 40 | 600 | 225 | 100 | 300 | 150 | 1 | 0.4 | 150 | 15 | 250 | BCE |
| MMBT4403 | PNP | -40 | -40 | -600 | 225 | 100 | 300 | -150 | -2 | -0.4 | -150 | -15 | 200 | BCE |
| MMBT5086 | PNP | -50 | -50 | -50 | 225 | 150 | 500 | -0.1 | -5 | -0.3 | -10 | -1 | 40 | BCE |
| MMBT5087 | PNP | -50 | -50 | -50 | 225 | 250 | 800 | -0.1 | -5 | -0.3 | -10 | -1 | 40 | BCE |
| MMBT5088 | NPN | 35 | 30 | 50 | 225 | 300 | 900 | 0.1 | 5 | 0.5 | 10 | 1 | 50 | BCE |
| MMBT5089 | NPN | 30 | 25 | 50 | 225 | 400 | 1200 | 0.1 | 5 | 0.5 | 10 | 1 | 50 | BCE |
| MMBT5401 | PNP | -160 | -150 | -600 | 225 | 60 | 240 | -10 | -5 | -0.2 | -10 | -1 | 100 | BCE |
| MMBT5550 | NPN | 160 | 140 | 600 | 225 | 60 | 250 | 10 | 5 | 0.25 | 50 | 5 | 100 | BCE |
| MMBT5551 | NPN | 180 | 160 | 600 | 225 | 80 | 250 | 10 | 5 | 0.15 | 10 | 1 | 100 | BCE |
| MMBT6427 | NPN | 40 | 40 | 500 | 225 | 20K | 200K | 100 | 5 | 1.2 | 50 | 0.5 | | BCE |
| MMBT6429 | NPN | 55 | 45 | 200 | 225 | 500 | 1250 | 0.1 | 5 | 0.2 | 10 | 0.5 | 100 | BCE |
| MMBT6517 | NPN | 350 | 350 | 500 | 225 | 30 | 200 | 30 | 10 | 0.5 | 30 | 3 | 40 | BCE |
| MMBT6520 | PNP | -350 | -350 | -500 | 225 | 30 | 200 | -30 | -10 | -0.5 | -30 | -3 | 40 | BCE |
| MMBT8050 | NPN | 25 | 20 | 700 | 225 | 150 | 500 | 150 | 1 | 0.5 | 500 | 50 | 150 | BCE |
| MMBT8099 | NPN | 80 | 80 | 500 | 225 | 100 | 300 | 1 | 5 | 0.4 | 100 | 5 | 150 | BCE |
| MMBT8550 | PNP | -25 | -20 | -700 | 225 | 150 | 400 | -150 | -1 | -0.5 | -500 | -50 | 150 | BCE |
| MMBT8599 | PNP | -80 | -80 | -500 | 225 | 100 | 300 | -1 | -5 | -0.4 | -100 | -5 | 150 | BCE |
| MMBT9018 | NPN | 20 | 15 | 50 | 225 | 30 | 400 | 1 | 6 | 0.5 | 5 | 0.5 | 500 | BCE |
| MMBTA06 | NPN | 80 | 80 | 500 | 225 | 50 | - | 10 | 1 | 0.25 | 100 | 10 | 100 | BCE |
| MMBTA13 | NPN | 30 | 30 | 300 | 225 | 10K | - | 100 | 5 | 1.5 | 100 | 0.1 | 125 | BCE |
| MMBTA14 | NPN | 30 | 30 | 300 | 225 | 20K | - | 100 | 5 | 1.5 | 100 | 0.1 | 125 | BCE |

| Part Number | NPN or PNP | Maximum Ratings | | | | Electrical Characteristics (Ta=25°C) | | | | | | | fT MHz | PIN |
|----------------------|------------|-----------------|-------|-------|---------------|--------------------------------------|------|------------|------------|------------|------------|------------|-----------|-----|
| | | BVCBO | BVCEO | IC | PD Ta=25°C | hFE | | | | VCE(sat) | | | | |
| | | (V) | (V) | (mA) | (mW) | Min | Max | IC (mA) | VCE (V) | Max (V) | IC (mA) | IB (mA) | | |
| SOT-23 (P.28) | | | | | | | | | | | | | | |
| MMBTA42 | NPN | 300 | 300 | 500 | 225 | 40 | - | 10 | 10 | 0.5 | 20 | 2 | 50 | BCE |
| MMBTA44 | NPN | 450 | 400 | 300 | 350 | 50 | 300 | 10 | 10 | 0.4 | 1 | 0.1 | | BCE |
| MMBTA56 | PNP | -80 | -80 | -500 | 225 | 50 | - | -100 | -1 | -0.25 | -100 | -10 | 100 | BCE |
| MMBTA64 | PNP | -30 | -30 | -500 | 225 | 20K | - | -100 | -5 | -1.5 | -100 | -0.1 | 125 | BCE |
| MMBTA92 | PNP | -300 | -300 | -500 | 225 | 40 | - | -10 | -10 | -0.5 | -20 | -2 | 50 | BCE |
| MMBTA94 | PNP | -400 | -400 | -150 | 350 | 75 | 200 | -10 | -10 | -0.2 | -1 | -0.1 | | BCE |
| MMBTH10 | NPN | 20 | 15 | 50 | 225 | 60 | - | 4 | 10 | 0.5 | 4 | 0.4 | 650 | BCE |
| GT85C | NPN | 50 | 45 | 800 | 225 | 100 | 630 | 100 | 1 | 0.7 | 500 | 50 | 100 | BCE |
| GTD82NS | NPN | 40 | 30 | 3000 | 1000 | 30 | 400 | 1 | 2 | 0.5 | 2 | 0.2 | 80 | BCE |
| GTB72PS | PNP | -40 | -30 | -3000 | 1000 | 30 | 400 | -1 | -2 | -0.5 | -2 | -0.2 | 80 | BCE |
| SC5094 | NPN | 18 | 10 | 20 | 150 | 50 | 200 | 1 | 2 | - | - | - | 9000 | BCE |
| SOT-89 (P.32) | | | | | | | | | | | | | | |
| M1300 | PNP | -20 | -10 | -2000 | 1 | 140 | 1000 | -500 | -1 | -0.5 | -2000 | -50 | 140 | BCE |
| M14 | NPN | 30 | 30 | 300 | 1 | 20K | - | 100 | 5 | 1.5 | 100 | 0.1 | 125 | BCE |
| M1426 | PNP | -20 | -20 | -3000 | 1.2 | 160 | 390 | -100 | -2 | -0.5 | -2000 | -100 | 240 | BCE |
| M2222A | NPN | 75 | 40 | 600 | 1.2 | 100 | 300 | 150 | 10 | 0.3 | 150 | 15 | 300 | BCE |
| M27 | NPN | 60 | 60 | 500 | 1 | 10K | - | 100 | 5 | 1.5 | 100 | 0.1 | | BCE |
| M2907A | PNP | -60 | -60 | -600 | 1.2 | 100 | 300 | -150 | -10 | -0.4 | -150 | -15 | 200 | BCE |
| M3019 | NPN | 140 | 80 | 1000 | 1.2 | 100 | 300 | 150 | 10 | 0.2 | 150 | 15 | 100 | BCE |
| M3669 | NPN | 80 | 80 | 2000 | 1 | 300 | - | 500 | 2 | 0.5 | 1000 | 50 | 100 | BCE |
| M3904 | NPN | 60 | 40 | 200 | 1 | 100 | 300 | 10 | 1 | 0.3 | 50 | 5 | 300 | BCE |
| M3906 | PNP | -40 | -40 | -200 | 1 | 100 | 300 | -10 | -1 | -0.4 | -50 | -5 | 250 | BCE |
| M4033 | PNP | -80 | -80 | -1000 | 1.2 | 100 | - | -100 | -5 | -0.5 | -500 | -50 | 100 | BCE |
| M42 | NPN | 300 | 300 | 500 | 1 | 40 | - | 10 | 10 | 0.5 | 20 | 2 | 50 | BCE |
| M44 | NPN | 400 | 400 | 300 | 1 | 50 | 300 | 10 | 10 | 0.38 | 20 | 2 | | BCE |
| M5401 | PNP | -160 | -150 | -600 | 1 | 60 | 240 | -10 | -5 | -0.5 | -50 | -5 | 100 | BCE |
| M5551 | NPN | 180 | 160 | 600 | 1.2 | 80 | 250 | 10 | 5 | 0.2 | 50 | 5 | 100 | BCE |
| M64 | PNP | -30 | -30 | -500 | 1 | 10K | - | -10 | -5 | -1.5 | -100 | -0.1 | 125 | BCE |
| M6718 | NPN | 100 | 100 | 1000 | 1 | 100 | 250 | 250 | 1 | 0.35 | 350 | 35 | 50 | BCE |
| M772 | PNP | -40 | -30 | -3000 | 1.5 | 100 | 500 | -1000 | -2 | -0.5 | -2000 | -200 | 80 | BCE |
| M772A | PNP | -60 | -50 | -3000 | 1.5 | 100 | 500 | -1000 | -2 | 0.5 | -2000 | -200 | 80 | BCE |
| M879 | NPN | 30 | 10 | 3000 | 1 | 140 | 400 | 3000 | 2 | 0.4 | 3000 | 60 | 200 | BCE |
| M882 | NPN | 40 | 30 | 3000 | 1.5 | 100 | 500 | 1000 | 2 | 0.5 | 2000 | 200 | 90 | BCE |
| M92 | PNP | -300 | -300 | -500 | 1 | 40 | - | -10 | -10 | -0.5 | -20 | -2 | 50 | BCE |
| M92M | PNP | -300 | -300 | -800 | 1 | 80 | - | -10 | -10 | -0.7 | -100 | -10 | 50 | BCE |
| M94 | PNP | -400 | -400 | -500 | 1 | 50 | 300 | -10 | -10 | -0.5 | -10 | -1 | | BCE |
| M965 | NPN | 40 | 20 | 5000 | 1.2 | 340 | 800 | 500 | 2 | 0.35 | 3000 | 100 | 150 | BCE |
| TO-92 (P.31) | | | | | | | | | | | | | | |
| 2N3417 | NPN | 50 | 50 | 500 | 625 | 180 | 540 | 2 | 4.5 | 0.3 | 50 | 3 | | EBC |
| 2N3904 | NPN | 60 | 40 | 200 | 625 | 100 | 300 | 10 | 1 | 0.2 | 10 | 1 | 300 | EBC |
| 2N3906 | PNP | -40 | -40 | -200 | 625 | 100 | 300 | -10 | -1 | -0.25 | -10 | -1 | 250 | EBC |
| 2N4124 | NPN | 30 | 25 | 200 | 350 | 120 | 360 | 2 | 1 | 0.3 | 50 | 5 | 300 | EBC |
| 2N4126 | PNP | -25 | -25 | -200 | 625 | 120 | 360 | -2 | -1 | -0.4 | -50 | -5 | 250 | EBC |
| 2N4401 | NPN | 60 | 40 | 600 | 625 | 100 | 300 | 150 | 1 | 0.4 | 150 | 15 | 250 | EBC |
| 2N4403 | PNP | -40 | -40 | -600 | 625 | 100 | 300 | -150 | -2 | -0.4 | -150 | -15 | 200 | EBC |
| 2N5086 | PNP | -50 | -50 | -50 | 350 | 150 | 500 | -0.1 | -5 | -0.3 | -10 | -1 | 40 | EBC |
| 2N5087 | PNP | -50 | -50 | -50 | 625 | 250 | 800 | -0.1 | -5 | -0.3 | -10 | -1 | 40 | EBC |
| 2N5088 | NPN | 35 | 30 | 50 | 350 | 300 | 900 | 0.1 | 5 | 0.5 | 10 | 1 | 50 | EBC |
| 2N5089 | NPN | 30 | 25 | 50 | 350 | 400 | 1200 | 0.1 | 5 | 0.5 | 10 | 1 | 50 | EBC |
| 2N5366 | PNP | -40 | -40 | -500 | 400 | 100 | - | -50 | -1 | -0.25 | -50 | -5 | | ECB |
| 2N5401 | PNP | -160 | -150 | -600 | 625 | 80 | 400 | -10 | -5 | -0.2 | -10 | -1 | 100 | EBC |
| 2N5551 | NPN | 180 | 160 | 600 | 625 | 80 | 400 | 10 | 5 | 0.2 | 50 | 5 | 100 | ECB |
| 2N6426 | NPN | 40 | 40 | 500 | 625 | 20K | 200K | 500 | 5 | 1.5 | 500 | 0.5 | | EBC |
| 2N6427 | NPN | 40 | 40 | 500 | 625 | 10K | 100K | 10 | 5 | 1.2 | 50 | 0.5 | | EBC |
| 2N6517 | NPN | 350 | 350 | 500 | 625 | 30 | 200 | 30 | 10 | 0.3 | 10 | 1 | 40 | EBC |
| 2N6520 | PNP | -350 | -350 | -500 | 625 | 30 | 200 | -30 | -10 | -0.3 | -10 | -1 | 40 | EBC |
| 2N6718L | NPN | 100 | 100 | 1000 | 850 | 50 | 300 | 250 | 1 | 0.35 | 350 | 35 | 50 | ECB |
| A3669 | NPN | 80 | 80 | 2000 | 750 | 240 | - | 500 | 2 | 0.5 | 1000 | 50 | 100 | ECB |
| A8050 | NPN | 40 | 25 | 1500 | 1000 | 85 | 500 | 100 | 1 | 0.5 | 800 | 80 | 100 | EBC |
| A8050S | NPN | 25 | 20 | 700 | 625 | 100 | 500 | 150 | 1 | 0.5 | 500 | 50 | 150 | EBC |
| A8550 | PNP | -40 | -25 | -1500 | 1000 | 85 | 500 | -100 | -1 | -0.5 | -800 | -80 | 100 | EBC |
| A8550S | PNP | -25 | -20 | -700 | 625 | 100 | 500 | -150 | -1 | -0.5 | -500 | -50 | 150 | EBC |
| AD825 | NPN | 80 | 55 | 600 | 625 | 10K | 100K | 100 | 5 | 1.5 | 100 | 0.1 | 125 | BCE |
| AD826 | NPN | 75 | 60 | 600 | 625 | 100 | 300 | 150 | 10 | 1 | 500 | 50 | 300 | BCE |

| Part Number | NPN or PNP | Maximum Ratings | | | | Electrical Characteristics (Ta=25°C) | | | | | | | fT MHz | PIN |
|---------------------|------------|-----------------|--------------|------------|-----------------------|--------------------------------------|------|------------|------------|------------|------------|------------|-----------|-----|
| | | BVCEO (V) | BVCEO (V) | IC (mA) | PD Ta=25°C (mW) | hFE | | | | VCE(sat) | | | | |
| | | | | | | Min | Max | IC (mA) | VCE (V) | Max (V) | IC (mA) | IB (mA) | | |
| TO-92 (P.31) | | | | | | | | | | | | | | |
| BC237 | NPN | 50 | 45 | 100 | 400 | 120 | 800 | 2 | 5 | 0.2 | 10 | 0.5 | 150 | CBE |
| BC327 | PNP | -50 | -45 | -500 | 625 | 100 | 600 | -100 | -1 | -0.7 | -500 | -50 | 100 | CBE |
| BC337 | NPN | 50 | 45 | 800 | 625 | 100 | 600 | 100 | 1 | 0.7 | 500 | 50 | 210 | CBE |
| BC546 | NPN | 80 | 65 | 100 | 625 | 110 | 800 | 2 | 5 | 0.25 | 10 | 0.5 | 300 | CBE |
| BC547 | NPN | 50 | 45 | 100 | 625 | 110 | 800 | 2 | 5 | 0.25 | 10 | 0.5 | 300 | CBE |
| BC548 | NPN | 30 | 30 | 100 | 400 | 110 | 800 | 2 | 5 | 0.6 | 100 | 5 | | CBE |
| BC556 | PNP | -80 | -65 | -100 | 500 | 75 | 475 | -2 | -5 | -0.3 | -10 | -0.5 | 300 | CBE |
| BC557 | PNP | -50 | -45 | -100 | 500 | 75 | 800 | -2 | -5 | -0.3 | -10 | -1 | 300 | CBE |
| BC558 | PNP | -30 | -25 | -100 | 500 | 75 | 885 | -2 | -5 | -0.3 | -10 | -1 | 300 | CBE |
| BF422 | NPN | 250 | 250 | 50 | 830 | 50 | - | 25 | 20 | 0.6 | 30 | 3 | 60 | ECB |
| BF423 | PNP | -250 | -250 | -50 | 830 | 50 | - | -25 | -20 | -0.6 | -30 | -3 | 60 | ECB |
| DY227 | NPN | 30 | 25 | 300 | 400 | 70 | 400 | 50 | 1 | 0.4 | 300 | 30 | | EBC |
| E8050 | NPN | 40 | 25 | 1500 | 1000 | 85 | 500 | 100 | 1 | 0.5 | 800 | 80 | 100 | ECB |
| E8050S | NPN | 25 | 20 | 700 | 625 | 100 | 500 | 150 | 1 | 0.5 | 500 | 50 | 150 | ECB |
| E8051 | NPN | 40 | 25 | 1500 | 1000 | 85 | 500 | 100 | 1 | 0.5 | 800 | 80 | 100 | EBC |
| E8051S | NPN | 25 | 20 | 700 | 625 | 100 | 500 | 150 | 1 | 0.5 | 500 | 50 | 150 | EBC |
| E8550 | PNP | -40 | -25 | -1500 | 1000 | 85 | 500 | -100 | -1 | -0.5 | -800 | -80 | 100 | ECB |
| E8550S | PNP | -25 | -20 | -700 | 625 | 100 | 500 | -150 | -1 | -0.5 | -500 | -50 | 150 | ECB |
| E8551 | PNP | -40 | -25 | -1500 | 1000 | 85 | 500 | -100 | -1 | -0.5 | -800 | -80 | 100 | EBC |
| E8551S | PNP | -25 | -20 | -700 | 625 | 100 | 500 | -150 | -1 | -0.5 | -500 | -50 | 150 | EBC |
| E9012 | PNP | -40 | -20 | -500 | 625 | 112 | 300 | -50 | -1 | -0.6 | -500 | -50 | 100 | EBC |
| E9013 | NPN | 40 | 20 | 500 | 625 | 112 | 300 | 50 | 1 | 0.6 | 500 | 50 | 100 | EBC |
| E9014 | NPN | 50 | 45 | 100 | 450 | 100 | 1000 | 1 | 5 | 0.14 | 100 | 5 | 150 | EBC |
| E9015 | PNP | -50 | -45 | -100 | 450 | 100 | 600 | -1 | -5 | -0.2 | -100 | -5 | 100 | EBC |
| E9018 | NPN | 30 | 15 | 50 | - | 39 | 198 | 1 | 5 | 0.5 | 10 | 1 | 700 | EBC |
| LB120A | NPN | 600 | 400 | 100 | 625 | 10 | 36 | 50 | 10 | 0.4 | 50 | 10 | | ECB |
| M28S | NPN | 40 | 20 | 1250 | 850 | 300 | 1000 | 100 | 1 | 0.55 | 600 | 20 | | ECB |
| MPS650 | NPN | 60 | 40 | 2000 | 625 | 75 | - | 500 | 2 | 0.5 | 2000 | 200 | 75 | EBC |
| MPS651 | NPN | 80 | 60 | 2000 | 625 | 75 | - | 500 | 2 | 0.5 | 2000 | 200 | 75 | EBC |
| MPS6562 | PNP | -25 | -25 | -500 | 625 | 50 | 200 | -500 | -1 | -0.5 | -500 | -50 | 60 | EBC |
| MPS751 | PNP | -80 | -60 | -2000 | 625 | 75 | - | -500 | -2 | -0.5 | -2000 | -200 | 75 | EBC |
| MPS8099 | NPN | 80 | 80 | 500 | 625 | 100 | 300 | 1 | 5 | 0.4 | 100 | 5 | | EBC |
| MPS8599 | PNP | -80 | -80 | -500 | 625 | 100 | 300 | -1 | -5 | -0.4 | -100 | -5 | 150 | EBC |
| MPSA05 | NPN | 60 | 60 | 500 | 625 | 50 | - | 100 | 1 | 0.25 | 100 | 10 | 100 | EBC |
| MPSA06 | NPN | 80 | 80 | 500 | 625 | 50 | - | 100 | 1 | 0.25 | 100 | 10 | 100 | EBC |
| MPSA13 | NPN | 30 | 30 | 500 | 600 | 10K | - | 100 | 5 | 1.5 | 100 | 0.1 | 125 | EBC |
| MPSA14 | NPN | 30 | 30 | 500 | 625 | 20K | - | 100 | 5 | 1.5 | 100 | 0.1 | 125 | EBC |
| MPSA18 | NPN | 45 | 45 | 200 | 625 | 500 | 1500 | 10 | 5 | 0.3 | 50 | 5 | 100 | EBC |
| MPSA26 | NPN | 50 | 50 | 500 | 625 | 10K | - | 10 | 5 | 1.5 | 100 | 0.1 | | EBC |
| MPSA27 | NPN | 60 | 60 | 500 | 625 | 10K | - | 100 | 5 | 1.5 | 100 | 0.1 | | EBC |
| MPSA42 | NPN | 300 | 300 | 500 | 625 | 40 | - | 10 | 10 | 0.35 | 20 | 2 | | EBC |
| MPSA42M | NPN | 300 | 300 | 800 | 625 | 80 | - | 10 | 10 | 0.2 | 20 | 2 | 50 | EBC |
| MPSA43 | NPN | 200 | 200 | 500 | 625 | 40 | - | 10 | 10 | 0.35 | 20 | 2 | 50 | EBC |
| MPSA44 | NPN | 400 | 400 | 300 | 625 | 50 | 300 | 10 | 10 | 0.35 | 1 | 0.1 | | EBC |
| MPSA55 | PNP | -60 | -60 | -500 | 625 | 50 | - | -100 | -1 | -0.25 | -100 | -10 | 50 | EBC |
| MPSA56 | PNP | -80 | -80 | -500 | 625 | 50 | - | -100 | -1 | -0.25 | -100 | -10 | 50 | EBC |
| MPSA64 | PNP | -30 | -30 | -500 | 625 | 10K | - | -10 | -5 | -1.5 | -100 | -0.1 | 125 | EBC |
| MPSA92 | PNP | -300 | -300 | -500 | 625 | 40 | - | -10 | -10 | -0.35 | -20 | -2 | 50 | EBC |
| MPSA92M | PNP | -300 | -300 | -800 | 625 | 80 | - | -10 | -10 | -0.15 | -30 | -1 | 50 | EBC |
| MPSA93 | PNP | -200 | -200 | -500 | 625 | 40 | - | -10 | -10 | -0.35 | -20 | -2 | 50 | EBC |
| MPSA94 | PNP | -400 | -400 | -500 | 625 | 50 | 300 | -10 | -10 | -0.5 | -10 | -1 | | EBC |
| MPSH10 | NPN | 20 | 15 | 50 | 625 | 60 | - | 4 | 10 | 0.5 | 4 | 0.4 | 650 | BEC |
| PH2369 | NPN | 40 | 15 | 500 | 625 | 40 | 120 | 10 | 1 | 0.25 | 10 | 1 | 500 | CBE |
| PN2222A | NPN | 75 | 40 | 600 | 625 | 100 | 300 | 150 | 10 | 0.3 | 150 | 15 | 300 | EBC |
| PN2369A | NPN | 40 | 40 | 200 | 625 | 40 | 120 | 10 | 0.35 | 0.2 | 10 | 1 | 500 | EBC |
| PN2907A | PNP | -60 | -60 | -600 | 625 | 100 | 300 | -150 | -10 | -0.4 | -150 | -15 | 200 | EBC |
| SA1015 | PNP | -50 | -50 | -150 | 400 | 120 | 700 | -2 | -6 | -0.3 | -100 | -10 | 270 | ECB |
| SA1300 | PNP | -20 | -10 | -2000 | 750 | 140 | 1000 | -500 | -1 | -0.5 | -2000 | -50 | 140 | ECB |
| SA1538S | PNP | -120 | -120 | -200 | 900 | 60 | 320 | -10 | -10 | -1 | -30 | -3 | 400 | ECB |
| SA733 | PNP | -60 | -50 | -100 | 250 | 90 | 600 | -1 | -6 | -0.18 | -100 | -10 | 100 | ECB |
| SB1109S | PNP | -160 | -160 | -100 | 900 | 60 | 320 | -10 | -5 | -2 | -30 | -3 | 140 | ECB |
| SB1426 | PNP | -20 | -20 | -3000 | 750 | 82 | 390 | -100 | -2 | -0.5 | -2000 | -100 | 240 | ECB |
| SB562 | PNP | -25 | -20 | -1000 | 900 | 85 | 240 | -500 | -2 | -0.5 | -800 | -80 | 350 | ECB |
| SB564A | PNP | -30 | -25 | -1000 | 800 | 70 | 400 | -100 | -1 | -0.5 | -1000 | -100 | 110 | ECB |

| Part Number | NPN or PNP | Maximum Ratings | | | | Electrical Characteristics (Ta=25°C) | | | | | | | fT MHz | PIN |
|----------------------|------------|-----------------|--------------|------------|-----------------------|--------------------------------------|-----|------------|------------|------------|------------|------------|-----------|-----|
| | | BVCBO (V) | BVCEO (V) | IC (mA) | PD Ta=25°C (mW) | hFE | | | | VCE(sat) | | | | |
| | | | | | | Min | Max | IC (mA) | VCE (V) | Max (V) | IC (mA) | IB (mA) | | |
| TO-92 (P.31) | | | | | | | | | | | | | | |
| SB764 | PNP | -60 | -50 | -1000 | 900 | 60 | 320 | -50 | -2 | -0.7 | -500 | -50 | 150 | ECB |
| SB772S | PNP | -40 | -30 | -3000 | 750 | 100 | 400 | -1000 | -2 | -0.3 | -2000 | -200 | 80 | ECB |
| SC1815 | NPN | 60 | 50 | 150 | 400 | 120 | 700 | 2 | 6 | 0.25 | 100 | 10 | 80 | ECB |
| SC1959 | NPN | 35 | 30 | 500 | 500 | 120 | 240 | 100 | 1 | 0.25 | 100 | 10 | 300 | ECB |
| SC2228Y | NPN | 160 | 160 | 50 | 900 | 60 | 320 | 10 | 10 | 0.6 | 20 | 2 | 50 | ECB |
| SC2240 | NPN | 150 | 150 | 100 | 625 | 120 | 400 | 2 | 6 | 0.3 | 10 | 1 | 100 | ECB |
| SC3953S | NPN | 120 | 120 | 200 | 900 | 60 | 320 | 10 | 10 | 1 | 30 | 3 | 400 | ECB |
| SC945 | NPN | 60 | 50 | 100 | 250 | 135 | 600 | 1 | 6 | 0.1 | 100 | 10 | 150 | ECB |
| SD1609S | NPN | 160 | 160 | 100 | 900 | 60 | 320 | 10 | 5 | 2 | 30 | 3 | 140 | ECB |
| SD1616A | NPN | 120 | 60 | 1000 | 750 | 135 | 600 | 100 | 2 | 0.3 | 1000 | 50 | 100 | ECB |
| SD468 | NPN | 25 | 20 | 1000 | 900 | 85 | 240 | 500 | 2 | 0.5 | 800 | 80 | 190 | ECB |
| SD471A | NPN | 40 | 30 | 1000 | 800 | 70 | 400 | 100 | 1 | 0.5 | 1000 | 100 | 130 | ECB |
| SD667A | NPN | 120 | 100 | 1000 | 900 | 60 | 200 | 150 | 5 | 1 | 500 | 50 | 140 | ECB |
| SD879 | NPN | 30 | 10 | 3000 | 750 | 140 | 400 | 3000 | 2 | 0.3 | 3000 | 60 | 200 | ECB |
| SD882S | NPN | 40 | 30 | 3000 | 750 | 100 | 500 | 1000 | 2 | 0.5 | 2000 | 200 | 90 | ECB |
| SD965 | NPN | 40 | 20 | 5000 | 750 | 230 | 800 | 500 | 2 | 0.35 | 3000 | 100 | 150 | ECB |
| T666 | NPN | 75 | 40 | 600 | 625 | 100 | 300 | 150 | 10 | 0.3 | 150 | 15 | 300 | ECB |
| TL145 | NPN | 500 | 500 | 300 | 1000 | 50 | 300 | 20 | 10 | 0.5 | 20 | 2 | 10 | EBC |
| TL194 | PNP | -400 | -400 | -300 | 1000 | 50 | 300 | -20 | -10 | -0.2 | -20 | -2 | 10 | ECB |
| TL195 | PNP | -500 | -500 | -300 | 1000 | 50 | 300 | -20 | -10 | -0.5 | -20 | -2 | 10 | ECB |
| TO-220 (P.30) | | | | | | | | | | | | | | |
| H2584 | PNP | -20 | -15 | -10 | 65 | 1K | 60K | -10 | -1.7 | -1.5 | -10 | -10 | | BCE |
| H2585 | PNP | -20 | -15 | -5 | 40 | 1K | 60K | -5 | -1.7 | -1.5 | -5 | -5 | | BCE |
| 2N6388 | NPN | 80 | 80 | 10 | 65 | 1K | 20K | 5 | 3 | 2 | 5 | 10 | | BCE |
| 2N6668 | PNP | -80 | -80 | -10 | 65 | 1K | 20K | -5 | -3 | -2 | -5 | -10 | | BCE |
| BU406 | NPN | 400 | 200 | 7 | 60 | 30 | 125 | 2 | 5 | 1 | 5 | 500 | | BCE |
| BU407 | NPN | 330 | 150 | 7 | 60 | 35 | 200 | 2 | 5 | 1 | 5 | 500 | 10 | BCE |
| D44H11 | NPN | 80 | 80 | 10 | 50 | 60 | - | 2 | 1 | 1 | 8 | 400 | 50 | BCE |
| D45H11 | PNP | -80 | -80 | -10 | 50 | 60 | - | -2 | -1 | -1 | -8 | -800 | 40 | BCE |
| LB124E | NPN | 600 | 400 | 2 | 35 | 10 | 40 | 0.3 | 5 | 0.3 | 0.1 | 10 | 15 | BCE |
| LB125E | NPN | 600 | 400 | 5 | 40 | 10 | - | 0.01 | 5 | 0.5 | 1 | 200 | | BCE |
| MJE13005 | NPN | 700 | 400 | 4 | 75 | 10 | 60 | 1 | 5 | 0.5 | 1 | 200 | | BCE |
| MJE13007 | NPN | 700 | 400 | 8 | 80 | 10 | 40 | 2 | 5 | 1 | 2 | 400 | | BCE |
| MJE13009 | NPN | 700 | 400 | 12 | 100 | 10 | 30 | 0.5 | 5 | 1 | 5 | 1000 | 4 | BCE |
| MJE2955T | PNP | -70 | -60 | -10 | 75 | 20 | 100 | -4 | -4 | -1.1 | -4 | -400 | 2 | BCE |
| MJE3055T | NPN | 70 | 60 | 10 | 75 | 20 | 100 | 4 | 4 | 1.1 | 4 | 400 | 2 | BCE |
| SB507 | PNP | -60 | -60 | -3 | 30 | 40 | 320 | -1 | -2 | -1 | -2 | -200 | 8 | BCE |
| SB857 | PNP | -70 | -50 | -4 | 40 | 60 | 320 | -1 | -4 | -1 | -2 | -200 | 15 | BCE |
| SC4242 | NPN | 450 | 400 | 7 | 40 | 10 | - | 4 | 5 | 0.8 | 4 | 800 | | BCE |
| SD1159 | NPN | 200 | 60 | 4.5 | 40 | 30 | 160 | 1 | 5 | 1 | 4 | 400 | 10 | BCE |
| SD313 | NPN | 60 | 60 | 3 | 30 | 40 | 320 | 1 | 2 | 1 | 2 | 200 | 8 | BCE |
| SD880 | NPN | 60 | 60 | 3 | 30 | 60 | 300 | 0.5 | 5 | 1 | 3 | 300 | 3 | BCE |
| TIP102 | NPN | 100 | 100 | 8 | 80 | 1K | 20K | 3 | 4 | 2 | 3 | 6 | | BCE |
| TIP105 | PNP | -60 | -60 | -8 | 80 | 1K | 20K | -3 | -4 | -2 | -3 | -6 | | BCE |
| TIP107 | PNP | -100 | -100 | -8 | 80 | 1K | 20K | -3 | -4 | -2 | -3 | -6 | | BCE |
| TIP112 | NPN | 100 | 100 | 4 | 50 | 1K | - | 1 | 4 | 2.5 | 2 | 8 | | BCE |
| TIP117 | PNP | -100 | -100 | -4 | 50 | 1K | - | -1 | -4 | -2.5 | -2 | -8 | | BCE |
| TIP122 | NPN | 100 | 100 | 5 | 65 | 1K | - | 0.5 | 3 | 2 | 3 | 12 | | BCE |
| TIP125 | PNP | -60 | -60 | -5 | 65 | 1K | - | -0.5 | -3 | -2 | -3 | -12 | | BCE |
| TIP127 | PNP | -100 | -100 | -5 | 65 | 1K | - | -0.5 | -3 | -2 | -3 | -12 | | BCE |
| TIP29C | NPN | 100 | 100 | 1 | 30 | 15 | 75 | 1 | 4 | 0.7 | 1 | 125 | 3 | BCE |
| TIP31C | NPN | 100 | 100 | 3 | 40 | 10 | 50 | 3 | 4 | 1.2 | 3 | 375 | 3 | BCE |
| TIP32C | PNP | -100 | -100 | -3 | 40 | 10 | 50 | -3 | -4 | -1.2 | -3 | -375 | 3 | BCE |
| TIP41C | NPN | 100 | 100 | 6 | 65 | 15 | 75 | 3 | 4 | 1.5 | 6 | 600 | 3 | BCE |
| TIP42C | PNP | -100 | -100 | -6 | 65 | 15 | 75 | -3 | -4 | -1.5 | -6 | -600 | 3 | BCE |
| TIP47 | NPN | 350 | 250 | 1 | 40 | 30 | 150 | 0.3 | 10 | 1 | 1 | 200 | 10 | BCE |
| TIP49 | NPN | 450 | 350 | 1 | 40 | 30 | 150 | 0.3 | 10 | 1 | 1 | 200 | 10 | BCE |
| TIP50 | NPN | 500 | 400 | 1 | 40 | 30 | 150 | 0.3 | 10 | 1 | 1 | 200 | 10 | BCE |
| SC4234 | NPN | 1200 | 800 | 3 | 45 | 8 | - | 1 | 5 | 1 | 1.5 | 300 | 8 | BCE |
| TO-3P (P.30) | | | | | | | | | | | | | | |
| MJE13007R | NPN | 700 | 400 | 8 | 130 | 10 | 30 | 0.5 | 5 | 1 | 2 | 400 | | BCE |
| MJE13009R | NPN | 700 | 400 | 12 | 130 | 8 | 40 | 5 | 5 | 1 | 5 | 1000 | | BCE |
| KTC5242 | NPN | 230 | 230 | 15 | 130 | 55 | 160 | 7 | 5 | 0.4 | 8 | 1000 | 30 | BCE |

| Part Number | NPN or PNP | Maximum Ratings | | | | Electrical Characteristics (Ta=25°C) | | | | | | | ft MHz | PIN |
|----------------------|------------|-----------------|--------------|------------|-----------------------|--------------------------------------|-----|------------|------------|------------|------------|------------|-----------|-----|
| | | BVCEO (V) | BVCEO (V) | IC (mA) | PD Ta=25°C (mW) | hFE | | | | VCE(sat) | | | | |
| | | | | | | Min | Max | IC (mA) | VCE (V) | Max (V) | IC (mA) | IB (mA) | | |
| T0-252 (P.30) | | | | | | | | | | | | | | |
| J10387 | NPN | 80 | 80 | 10 | 20 | 2K | 20K | 5 | 3 | 2 | 5 | 10 | | BCE |
| J1109 | PNP | -160 | -160 | -0.1 | #1.25 | 60 | 320 | -0.01 | -5 | -2 | -0.03 | -3 | | BCE |
| J112 | NPN | 100 | 100 | 4 | 20 | 1K | 12K | 2 | 3 | 2.5 | 2 | 8 | | BCE |
| J117 | PNP | -100 | -100 | -4 | 20 | 1K | 12K | -2 | -3 | -2 | -2 | -8 | | BCE |
| J122 | NPN | 100 | 100 | 5 | 20 | 1K | 12K | 4 | 4 | 2 | 4 | 16 | | BCE |
| J127 | PNP | -100 | -100 | -5 | 20 | 1K | 12K | -4 | -4 | -2 | -4 | -16 | | BCE |
| J13003 | NPN | 700 | 400 | 1.5 | 15 | 8 | 40 | 0.5 | 2 | 1 | 1 | 250 | | BCE |
| J1538 | PNP | -120 | -120 | -0.2 | #1.3 | 60 | 320 | -0.01 | -10 | -1 | -0.03 | -3 | | BCE |
| J1609 | NPN | 160 | 160 | 0.1 | #1.25 | 60 | 320 | 0.01 | 5 | 2 | 0.03 | 3 | | BCE |
| J200 | NPN | 40 | 25 | 5 | 10 | 45 | 180 | 2 | 1 | 0.75 | 2 | 200 | | BCE |
| J210 | PNP | -40 | -25 | -5 | 12.5 | 45 | 180 | -2 | -1 | -0.75 | -2 | -200 | | BCE |
| J2584 | PNP | -35 | -35 | -10 | 20 | 2K | 60K | -0.5 | -1.7 | -1.5 | -10 | -10 | | BCE |
| J2955 | PNP | -70 | -60 | -10 | 20 | 20 | 100 | -4 | -4 | -1.1 | -4 | -400 | | BCE |
| J3055 | NPN | 70 | 60 | 10 | 20 | 20 | 100 | 4 | 4 | 1.1 | 4 | 400 | | BCE |
| J31C | NPN | 100 | 100 | 3 | 15 | 10 | 50 | 3 | 4 | 1.2 | 3 | 375 | | BCE |
| J32C | PNP | -100 | -100 | -3 | 15 | 10 | 50 | -3 | -4 | -1.2 | -3 | -375 | | BCE |
| J340 | NPN | 300 | 300 | 0.5 | 15 | 30 | 240 | 0.05 | 10 | - | - | - | | BCE |
| J350 | PNP | -300 | -300 | -0.5 | 15 | 30 | 240 | -0.05 | -10 | - | - | - | | BCE |
| J3669 | NPN | 80 | 80 | 2 | #1.25 | 300 | - | 0.5 | 2 | 0.5 | 1 | 50 | | BCE |
| J3953 | NPN | 120 | 120 | 0.2 | #1.3 | 60 | 320 | 0.01 | 10 | 1 | 0.03 | 3 | | BCE |
| J41C | NPN | 100 | 100 | 6 | 20 | 15 | 75 | 3 | 4 | 1.5 | 6 | 600 | | BCE |
| J42C | PNP | -100 | -100 | -6 | 20 | 15 | 75 | -3 | -4 | -1.5 | -6 | -600 | | BCE |
| J44H11 | NPN | 80 | 80 | 8 | 20 | 60 | - | 2 | 1 | 1 | 8 | 400 | | BCE |
| J45H11 | PNP | -80 | -80 | -10 | 20 | 60 | - | -2 | -1 | -1 | -8 | -800 | | BCE |
| J47 | NPN | 350 | 250 | 1 | 20 | 30 | 150 | 0.3 | 10 | 1 | 1 | 200 | | BCE |
| J50 | NPN | 500 | 400 | 1 | 15 | 30 | 150 | 0.3 | 10 | 1 | 1 | 200 | | BCE |
| J649A | PNP | -180 | -160 | -1.5 | 20 | 60 | 200 | -0.15 | -5 | 1 | -0.5 | -50 | | BCE |
| J6668 | PNP | -80 | -80 | -10 | 20 | 1K | 20K | -5 | -3 | -2 | -5 | -10 | | BCE |
| J667A | PNP | -120 | -100 | -1 | 20 | 60 | 200 | -0.15 | -5 | -1 | -0.5 | -50 | | BCE |
| J669A | NPN | 180 | 160 | 1.5 | #1 | 60 | 200 | 0.15 | 5 | 1 | 0.5 | 50 | | BCE |
| J6718 | NPN | 100 | 100 | 1 | 20 | 50 | 250 | 0.25 | 1 | 0.35 | 0.35 | 35 | | BCE |
| J772 | PNP | -40 | -30 | -3 | 20 | 100 | 500 | -1 | -2 | -0.5 | -2 | -200 | | BCE |
| J882 | NPN | 40 | 30 | 3 | 10 | 160 | 400 | 1 | 2 | 0.5 | 2 | 200 | | BCE |

RF transistors

| Part Number | Voltage VCBO (V) | Current Ic (mA) | Frequency (GHz) | Performances stable power gain (type) | Application | Package |
|----------------|---------------------|--------------------|--------------------|---|--|----------------------------|
| SiGe | | | | | | |
| GTRFG761 | 8 | 35 | 60 | 20dB | W-CDMA, LNA, SiGeHBT | SOT-343 (3K/reel) (P.30) |
| GTRFG843 | 8 | 35 | 60 | 20dB | Mobile Comm., VCO, SiGeHBT | SOT-763 (3K/reel) (P.29) |
| GTRFG2105 | 13 | 35 | 25 | 22.5dB | 2.4GHz Wireless LAN, ITS, LNA, SiGeHBT | SOT-343 (3K/reel) (P.30) |
| GTRFG2105 | 13 | 35 | 25 | 22.5dB | 2.4GHz Wireless LAN, ITS, LNA, SiGeHBT | SOT-763 (3K/reel) (P.29) |
| GTRFG0105 | 13 | 100 | 17 | 17dB | W-CDMA, 2.4GHz Wireless LAN, SiGeHBT | SOT-343 (3K/reel) (P.30) |
| GTRFG0116 | 13 | 100 | 17 | 17dB | W-CDMA, 2.4GHz Wireless LAN, SiGeHBT | SOT-763 (3K/reel) (P.29) |
| Silicon | | | | | | |
| GTRFS355 | 20 | 100 | 6.5 | 9.5dB | High-Freq low-noise amplification | TO-92 (P.31) |
| GTRFS536 | 30 | 250 | 5.3 | 7.2dB | High-Freq low-noise amplification | SOT-89 (1K/reel) (P.32) |
| GTRFS356 | 20 | 100 | 7 | 11.5dB | Microwave | SOT-23 (3K/reel) (P.28) |
| GTRFS585 | 20 | 35 | 10 | 10dB | VHF , UHF band | SOT-23 (3K/reel) (P.28) |
| GTRFS191 | 9 | 100 | 10 | 3.5dB | Microwave | SOT-23 (3K/reel) (P.28) |
| GTRFS226 | 20 | 100 | 4.5 | 9dB | VHF , UHF band | SOT-323 (3K/reel) (P.28) |
| GTRFS571 | 20 | 60 | 5 | 5dB | UHF high-Freq | SOT-323 (3K/reel) (P.28) |
| GTRFS228 | 20 | 35 | 8 | 7.5dB | VHF , UHF band | SOT-323 (3K/reel) (P.28) |
| GTRFS193 | 9 | 100 | 4.5 | 3.5dB | High-Freq low-noise amplification | SOT-323 (3K/reel) (P.28) |
| GTRFS004 | 20 | 60 | 5 | 5dB | UHF high-Freq | SOT-523 (3K/reel) (P.28) |
| GTRFS006 | 20 | 100 | 4.5 | 9dB | VHF , UHF band | SOT-523 (3K/reel) (P.28) |
| GTRFS008 | 20 | 35 | 8 | 7.5dB | VHF , UHF band | SOT-523 (3K/reel) (P.28) |
| GTRFS195 | 9 | 100 | 4.5 | 3.5dB | High-Freq low-noise amplification | SOT-523 (3K/reel) (P.28) |
| GTRFS431 | 20 | 60 | 4.3 | 5dB | UHF high-Freq | MiniSOT-523 (3K/reel) |
| GTRFS432 | 20 | 100 | 4.5 | 10dB | High-Freq low-noise amplification | MiniSOT-523 (3K/reel) |
| GTRFS434 | 20 | 35 | 8 | 7.5dB | VHF , UHF band | MiniSOT-523 (3K/reel) |
| GTRFS437 | 9 | 100 | 4.5 | 3.5dB | High-Freq low-noise amplification | MiniSOT-523 (3K/reel) |
| GTRFS614 | 20 | 100 | 4.5 | 10dB | High-Freq low-noise amplification | SOT-723 (10K/reel) (P.28) |
| GTRFS801 | 9 | 100 | 4.5 | 3.5dB | High-Freq low-noise amplification | SOT-723 (10K/reel) (P.28) |
| GTRFS192 | 9 | 100 | 4.5 | 3.5dB | High-Freq low-noise amplification | SOT-143 (3K/reel) (P.30) |
| GTRFS975 | 9 | 30 | 12 | 11dB | High-Freq low-noise amplification | SOT-143 (3K/reel) (P.30) |
| GTRFS194 | 9 | 100 | 4.5 | 3.5dB | High-Freq low-noise amplification | SOT-343 (3K/reel) (P.30) |

Digital Transistors

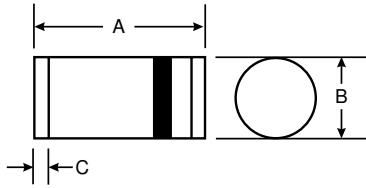
| Part Number | NPN or PNP | Maximum Ratings | | | | Electrical Characteristics (Ta=25°C) | | | | INPUT | | | fT MHz | PIN |
|-----------------------|------------|-----------------|-------|------|-----------------|--------------------------------------|-----|------------|------------|-------------|-------------------|-------------------|-----------|-----|
| | | BVCBO | BVCEO | IC | PD | hFE | | | | Current | R1 | R2 | | |
| | | (V) | (V) | (mA) | Ta=25°C (mW) | Min | Max | IC (mA) | VCE (V) | Max (mA) | resistance (Ω) | resistance (Ω) | | |
| SOT-323 (P.28) | | | | | | | | | | | | | | |
| DTA114ES3 | PNP | -50 | -50 | -100 | 200 | 30 | - | -5 | -5 | -0.88 | 10K | 10K | 250 | BCE |
| DTA114TS3 | PNP | -50 | -50 | -100 | 200 | 100 | 600 | -1 | -5 | -0.88 | 10K | NONE | 250 | BCE |
| DTA114YS3 | PNP | -50 | -50 | -100 | 200 | 68 | - | -5 | -5 | -0.88 | 10K | 47K | 250 | BCE |
| DTA115ES3 | PNP | -50 | -50 | -100 | 200 | 82 | - | -5 | -5 | -0.15 | 100K | 100K | 250 | BCE |
| DTA123JS3 | PNP | -50 | -50 | -100 | 200 | 80 | - | -10 | -5 | -3.6 | 2.2K | 47K | 250 | BCE |
| DTA123TS3 | PNP | -50 | -50 | -100 | 200 | 100 | 600 | -1 | -5 | -3.6 | 2.2K | NONE | 250 | BCE |
| DTA123YS3 | PNP | -50 | -50 | -100 | 200 | 33 | - | -10 | -5 | -3.6 | 2.2K | 10K | 250 | BCE |
| DTA124ES3 | PNP | -50 | -50 | -100 | 200 | 56 | - | -5 | -5 | -0.36 | 22K | 22K | 250 | BCE |
| DTA143ES3 | PNP | -50 | -50 | -100 | 200 | 20 | - | -10 | -5 | -1.8 | 4.7K | 4.7K | 250 | BCE |
| DTA143TS3 | PNP | -50 | -50 | -100 | 200 | 100 | 600 | -1 | -5 | -1.8 | 4.7K | NONE | 250 | BCE |
| DTA143XS3 | PNP | -50 | -50 | -100 | 200 | 30 | - | -10 | -5 | -1.8 | 4.7K | 10K | 250 | BCE |
| DTA143ZS3 | PNP | -50 | -50 | -100 | 200 | 80 | - | -10 | -5 | -1.8 | 4.7K | 47K | 250 | BCE |
| DTA144ES3 | PNP | -50 | -50 | -100 | 200 | 68 | - | -5 | -5 | -0.18 | 47K | 47K | 250 | BCE |
| DTA144TS3 | PNP | -50 | -50 | -100 | 200 | 100 | 600 | -1 | -5 | -0.18 | 47K | NONE | 250 | BCE |
| DTA144WS3 | PNP | -50 | -50 | -100 | 200 | 56 | - | -5 | -5 | -0.18 | 47K | 22K | 250 | BCE |
| DTB114ES3 | PNP | -50 | -50 | -500 | 200 | 56 | - | -50 | -5 | 0.88 | 10K | 10K | 250 | BCE |
| DTC113ZS3 | NPN | 50 | 50 | 100 | 200 | 33 | - | 5 | 5 | 7.2 | 1K | 10K | 250 | BCE |
| DTC114ES3 | NPN | 50 | 50 | 100 | 200 | 30 | - | 5 | 5 | 0.88 | 10K | 10K | 250 | BCE |
| DTC114TS3 | NPN | 50 | 50 | 100 | 200 | 100 | 600 | 1 | 5 | 0.88 | 10K | NONE | 250 | BCE |
| DTC114WS3 | NPN | 50 | 50 | 100 | 200 | 24 | - | 10 | 5 | 0.88 | 10K | 4.7K | 250 | BCE |
| DTC114YS3 | NPN | 50 | 50 | 100 | 200 | 68 | - | 5 | 5 | 0.88 | 10K | 47K | 250 | BCE |
| DTC115ES3 | NPN | 50 | 50 | 100 | 200 | 82 | - | 5 | 5 | 0.15 | 100K | 100K | 250 | BCE |
| DTC115GS3 | NPN | 50 | 50 | 100 | 200 | 82 | - | 5 | 5 | 0.15 | NONE | 100K | 250 | BCE |
| DTC123TS3 | NPN | 50 | 50 | 100 | 200 | 100 | 600 | 1 | 5 | 3.8 | 2.2K | NONE | 250 | BCE |
| DTC123YS3 | NPN | 50 | 50 | 100 | 200 | 33 | - | 10 | 5 | 3.8 | 2.2K | 10K | 250 | BCE |
| DTC124ES3 | NPN | 50 | 50 | 100 | 200 | 56 | - | 5 | 5 | 0.36 | 22K | 22K | 250 | BCE |
| DTC124XS3 | NPN | 50 | 50 | 100 | 200 | 68 | - | 5 | 5 | 0.36 | 22K | 47K | 250 | BCE |
| DTC143ES3 | NPN | 50 | 50 | 100 | 200 | 20 | - | 10 | 5 | 1.8 | 4.7K | 4.7K | 250 | BCE |
| DTC143TS3 | NPN | 50 | 50 | 100 | 200 | 100 | 600 | 1 | 5 | 1.8 | 4.7K | NONE | 250 | BCE |
| DTC143XS3 | NPN | 50 | 50 | 100 | 200 | 30 | - | 10 | 5 | 1.8 | 4.7K | 10K | 250 | BCE |
| DTC143YS3 | NPN | 50 | 50 | 100 | 200 | 33 | - | 10 | 5 | 1.8 | 4.7K | 22K | 250 | BCE |
| DTC143ZS3 | NPN | 50 | 50 | 100 | 200 | 80 | - | 10 | 5 | 1.8 | 4.7K | 47K | 250 | BCE |
| DTC144ES3 | NPN | 50 | 50 | 100 | 200 | 68 | - | 5 | 5 | 0.18 | 47K | 47K | 250 | BCE |
| DTC144TS3 | NPN | 50 | 50 | 100 | 200 | 100 | 600 | 1 | 5 | 0.18 | 47K | NONE | 250 | BCE |
| DTC144VS3 | NPN | 50 | 50 | 100 | 200 | 33 | - | 5 | 5 | 0.18 | 47K | 10K | 250 | BCE |
| DTC144WS3 | NPN | 50 | 50 | 100 | 200 | 56 | - | 5 | 5 | 0.18 | 47K | 22K | 250 | BCE |
| DTD113ZS3 | NPN | 50 | 50 | 500 | 200 | 56 | - | 50 | 5 | 7.2 | 1K | 10K | 250 | BCE |
| DTD114ES3 | NPN | 50 | 50 | 500 | 200 | 56 | - | 50 | 5 | 0.88 | 10K | 10K | 250 | BCE |
| DTD143ES3 | NPN | 50 | 50 | 500 | 200 | 47 | - | 50 | 5 | 1.8 | 4.7K | 4.7K | 250 | BCE |
| SOT-523 (P.28) | | | | | | | | | | | | | | |
| DTA114EUS3 | PNP | -50 | -50 | -100 | 200 | 30 | - | -5 | -5 | -0.88 | 10K | 10K | 250 | BCE |
| DTA114TUS3 | PNP | -50 | -50 | -100 | 200 | 100 | 600 | -1 | -5 | -0.88 | 10K | NONE | 250 | BCE |
| DTA114YUS3 | PNP | -50 | -50 | -100 | 200 | 68 | - | -5 | -5 | -0.88 | 10K | 47K | 250 | BCE |
| DTA115EUS3 | PNP | -50 | -50 | -100 | 200 | 82 | - | -5 | -5 | | 100K | 100K | 250 | BCE |
| DTA123JUS3 | PNP | -50 | -50 | -100 | 200 | 80 | - | -10 | -5 | -3.6 | 2.2K | 47K | 250 | BCE |
| DTA123TUS3 | PNP | -50 | -50 | -100 | 200 | 100 | 600 | -1 | -5 | -3.6 | 2.2K | NONE | 250 | BCE |
| DTA123YUS3 | PNP | -50 | -50 | -100 | 200 | 33 | - | -10 | -5 | -3.6 | 2.2K | 10K | 250 | BCE |
| DTA124EUS3 | PNP | -50 | -50 | -100 | 200 | 56 | - | -5 | -5 | -0.36 | 22K | 22K | 250 | BCE |
| DTA143EUS3 | PNP | -50 | -50 | -100 | 200 | 20 | - | -10 | -5 | -1.8 | 4.7K | 4.7K | 250 | BCE |
| DTA143TUS3 | PNP | -50 | -50 | -100 | 200 | 100 | 600 | -1 | -5 | -1.8 | 4.7K | NONE | 250 | BCE |
| DTA143XUS3 | PNP | -50 | -50 | -100 | 200 | 30 | - | -10 | -5 | -1.8 | 4.7K | 10K | 250 | BCE |
| DTA143ZUS3 | PNP | -50 | -50 | -100 | 200 | 80 | - | -10 | -5 | -1.8 | 4.7K | 47K | 250 | BCE |
| DTA144EUS3 | PNP | -50 | -50 | -100 | 200 | 68 | - | -5 | -5 | -0.18 | 47K | 47K | 250 | BCE |
| DTA144TUS3 | PNP | -50 | -50 | -100 | 200 | 100 | 600 | -1 | -5 | -0.18 | 47K | NONE | 250 | BCE |
| DTA144WUS3 | PNP | -50 | -50 | -100 | 200 | 56 | - | -5 | -5 | -0.18 | 47K | 22K | 250 | BCE |
| DTB114EUS3 | PNP | -50 | -50 | -500 | 200 | 56 | - | -50 | -5 | 0.88 | 10K | 10K | 250 | BCE |
| DTC113ZUS3 | NPN | 50 | 50 | 100 | 200 | 33 | - | 5 | 5 | 7.2 | 1K | 10K | 250 | BCE |
| DTC114EUS3 | NPN | 50 | 50 | 100 | 200 | 30 | - | 5 | 5 | 0.88 | 10K | 10K | 250 | BCE |
| DTC114TUS3 | NPN | 50 | 50 | 100 | 200 | 100 | 600 | 1 | 5 | 0.88 | 10K | NONE | 250 | BCE |
| DTC114WUS3 | NPN | 50 | 50 | 100 | 200 | 24 | - | 10 | 5 | 0.88 | 10K | 4.7K | 250 | BCE |
| DTC114YUS3 | NPN | 50 | 50 | 100 | 200 | 68 | - | 5 | 5 | 0.88 | 10K | 47K | 250 | BCE |
| DTC115EUS3 | NPN | 50 | 50 | 100 | 200 | 82 | - | 5 | 5 | 0.15 | 100K | 100K | 250 | BCE |
| DTC115GUS3 | NPN | 50 | 50 | 100 | 200 | 82 | - | 5 | 5 | 0.15 | NONE | 100K | 250 | BCE |

| Part Number | NPN or PNP | Maximum Ratings | | | | Electrical Characteristics (Ta=25°C) | | | | INPUT | | | fT MHz | PIN |
|-----------------------|------------|-----------------|--------------|------------|-----------------------|--------------------------------------|-----|------------|------------|------------------------|-------------------------|-------------------------|-----------|------|
| | | BVCEO (V) | BVCEO (V) | IC (mA) | PD Ta=25°C (mW) | hFE | | | | Current Max (mA) | R1 resistance (Ω) | R2 resistance (Ω) | | |
| | | | | | | Min | Max | IC (mA) | VCE (V) | | | | | |
| SOT-523 (P.28) | | | | | | | | | | | | | | |
| DTC124XUS3 | NPN | 50 | 50 | 100 | 200 | 68 | - | 5 | 5 | 0.36 | 22K | 47K | 250 | BCE |
| DTC143EUS3 | NPN | 50 | 50 | 100 | 200 | 20 | - | 10 | 5 | 1.8 | 4.7K | 4.7K | 250 | BCE |
| DTC143TUS3 | NPN | 50 | 50 | 100 | 200 | 100 | 600 | 1 | 5 | 1.8 | 4.7K | NONE | 250 | BCE |
| DTC143XUS3 | NPN | 50 | 50 | 100 | 200 | 30 | - | 10 | 5 | 1.8 | 4.7K | 10K | 250 | BCE |
| DTC143YUS3 | NPN | 50 | 50 | 100 | 200 | 33 | - | 10 | 5 | 1.8 | 4.7K | 22K | 250 | BCE |
| DTC143ZUS3 | NPN | 50 | 50 | 100 | 200 | 80 | - | 10 | 5 | 1.8 | 4.7K | 47K | 250 | BCE |
| DTC144EUS3 | NPN | 50 | 50 | 100 | 200 | 68 | - | 5 | 5 | 0.18 | 47K | 47K | 250 | BCE |
| DTC144TUS3 | NPN | 50 | 50 | 100 | 200 | 100 | 600 | 1 | 5 | 0.18 | 47K | NONE | 250 | BCE |
| DTC144VUS3 | NPN | 50 | 50 | 100 | 200 | 33 | - | 5 | 5 | 0.18 | 47K | 10K | 250 | BCE |
| DTC144WUS3 | NPN | 50 | 50 | 100 | 200 | 56 | - | 5 | 5 | 0.18 | 47K | 22K | 250 | BCE |
| DTD113ZUS3 | NPN | 50 | 50 | 500 | 200 | 56 | - | 50 | 5 | 7.2 | 1K | 10K | 250 | BCE |
| DTD114EUS3 | NPN | 50 | 50 | 500 | 200 | 56 | - | 50 | 5 | 0.88 | 10K | 10K | 250 | BCE |
| DTD143EUS3 | NPN | 50 | 50 | 500 | 200 | 47 | - | 50 | 5 | 1.8 | 4.7K | 4.7K | 250 | BCE |
| SOT-363 (P.29) | | | | | | | | | | | | | | |
| BA114ES6R | P*2 | -50 | -50 | -100 | 200 | 30 | - | -5 | -5 | -0.88 | 10K | 10K | 250 | Daul |
| BA114TS6R | P*2 | -50 | -50 | -100 | 200 | 100 | 600 | -1 | -5 | -0.88 | 10K | NONE | 250 | Daul |
| BA114YS6R | P*2 | -50 | -50 | -100 | 200 | 68 | - | -5 | -5 | -0.88 | 10K | 47K | 250 | Daul |
| BA124ES6R | P*2 | -50 | -50 | -100 | 200 | 56 | - | -5 | -5 | -0.36 | 22K | 22K | 250 | Daul |
| BA143TS6R | P*2 | -50 | -50 | -100 | 200 | 100 | 600 | -1 | -5 | -1.8 | 4.7K | NONE | 250 | Daul |
| BA143ZS6R | P*2 | -50 | -50 | -100 | 200 | 80 | - | -10 | -5 | -1.8 | 4.7K | 47K | 250 | Daul |
| BA144ES6R | P*2 | -50 | -50 | -100 | 200 | 68 | - | -5 | -5 | -0.18 | 47K | 47K | 250 | Daul |
| BC114ES6R | N*2 | 50 | 50 | 100 | 200 | 30 | - | 5 | 5 | 0.88 | 10K | 10K | 250 | Daul |
| BC114TS6R | N*2 | 50 | 50 | 100 | 200 | 100 | 600 | 1 | 5 | 0.88 | 10K | NONE | 250 | Daul |
| BC114YS6R | N*2 | 50 | 50 | 100 | 200 | 68 | - | 5 | 5 | 0.88 | 10K | 47K | 250 | Daul |
| BC124ES6R | N*2 | 50 | 50 | 100 | 200 | 56 | - | 5 | 5 | 0.36 | 22K | 22K | 250 | Daul |
| BC124XS6R | N*2 | 50 | 50 | 100 | 200 | 68 | - | 5 | 5 | 0.36 | 22K | 47K | 250 | Daul |
| BC143ES6R | N*2 | 50 | 50 | 100 | 200 | 20 | - | 10 | 5 | 1.8 | 4.7K | 4.7K | 250 | Daul |
| BC143TS6R | N*2 | 50 | 50 | 100 | 200 | 100 | 600 | 1 | 5 | 1.8 | 4.7K | NONE | 250 | Daul |
| BC143XS6R | N*2 | 50 | 50 | 100 | 200 | 30 | - | 10 | 5 | 1.8 | 4.7K | 10K | 250 | Daul |
| BC143ZS6R | N*2 | 50 | 50 | 100 | 200 | 80 | - | 10 | 5 | 1.8 | 4.7K | 47K | 250 | Daul |
| BC144ES6R | N*2 | 50 | 50 | 100 | 200 | 68 | - | 5 | 5 | 0.18 | 47K | 47K | 250 | Daul |
| BCA114ES6R | N+P | 50 | 50 | 100 | 200 | 30 | - | 5 | 5 | 0.88 | 10K | 10K | 250 | N+P |
| | | -50 | -50 | -100 | 200 | 30 | - | -5 | -5 | -0.88 | 10K | 10K | 250 | |
| BCA124ES6R | N+P | 50 | 50 | 100 | 200 | 56 | - | 5 | 5 | 0.36 | 22K | 22K | 250 | N+P |
| | | -50 | -50 | -100 | 200 | 56 | - | -5 | -5 | -0.36 | 22K | 22K | 250 | |
| SOT-563 (P.29) | | | | | | | | | | | | | | |
| BA114EUS6R | P*2 | -50 | -50 | -100 | 150 | 30 | - | -5 | -5 | -0.88 | 10K | 10K | 250 | Daul |
| BA114TUS6R | P*2 | -50 | -50 | -100 | 150 | 100 | 600 | -1 | -5 | -0.88 | 10K | NONE | 250 | Daul |
| BA114YUS6R | P*2 | -50 | -50 | -100 | 150 | 68 | - | -5 | -5 | -0.88 | 10K | 47K | 250 | Daul |
| BA124EUS6R | P*2 | -50 | -50 | -100 | 150 | 56 | - | -5 | -5 | -0.36 | 22K | 22K | 250 | Daul |
| BA143TUS6R | P*2 | -50 | -50 | -100 | 150 | 100 | 600 | -1 | -5 | -1.8 | 4.7K | NONE | 250 | Daul |
| BA143ZUS6R | P*2 | -50 | -50 | -100 | 150 | 80 | - | -10 | -5 | -1.8 | 4.7K | 47K | 250 | Daul |
| BA144EUS6R | P*2 | -50 | -50 | -100 | 150 | 68 | - | -5 | -5 | -0.18 | 47K | 47K | 250 | Daul |
| BC114EUS6R | N*2 | 50 | 50 | 100 | 150 | 30 | - | 5 | 5 | 0.88 | 10K | 10K | 250 | Daul |
| BC114TUS6R | N*2 | 50 | 50 | 100 | 150 | 100 | 600 | 1 | 5 | 0.88 | 10K | NONE | 250 | Daul |
| BC114YUS6R | N*2 | 50 | 50 | 100 | 150 | 68 | - | 5 | 5 | 0.88 | 10K | 47K | 250 | Daul |
| BC124EUS6R | N*2 | 50 | 50 | 100 | 150 | 56 | - | 5 | 5 | 0.36 | 22K | 22K | 250 | Daul |
| BC124XUS6R | N*2 | 50 | 50 | 100 | 150 | 68 | - | 5 | 5 | 0.36 | 22K | 47K | 250 | Daul |
| BC143EUS6R | N*2 | 50 | 50 | 100 | 150 | 20 | - | 10 | 5 | 1.8 | 4.7K | 4.7K | 250 | Daul |
| BC143TUS6R | N*2 | 50 | 50 | 100 | 150 | 100 | 600 | 1 | 5 | 1.8 | 4.7K | NONE | 250 | Daul |
| BC143XUS6R | N*2 | 50 | 50 | 100 | 150 | 30 | - | 10 | 5 | 1.8 | 4.7K | 10K | 250 | Daul |
| BC143ZUS6R | N*2 | 50 | 50 | 100 | 150 | 80 | - | 10 | 5 | 1.8 | 4.7K | 47K | 250 | Daul |
| BC144EUS6R | N*2 | 50 | 50 | 100 | 150 | 68 | - | 5 | 5 | 0.18 | 47K | 47K | 250 | Daul |
| BCA114EUS6R | N+P | 50 | 50 | 100 | 150 | 30 | - | 5 | 5 | 0.88 | 10K | 10K | 250 | N+P |
| | | -50 | -50 | -100 | 150 | 30 | - | -5 | -5 | -0.88 | 10K | 10K | 250 | |
| BCA124EUS6R | N+P | 50 | 50 | 100 | 150 | 56 | - | 5 | 5 | 0.36 | 22K | 22K | 250 | N+P |
| | | -50 | -50 | -100 | 150 | 56 | - | -5 | -5 | -0.36 | 22K | 22K | 250 | |

Other Package Outline Dimensions

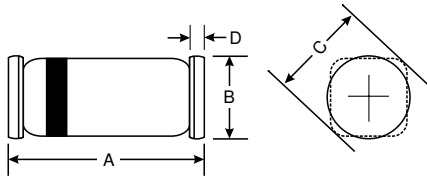
All Dimensions in mm

MiniMELF / MELF



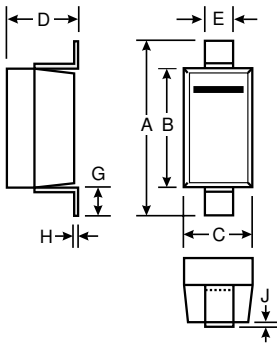
| Dim | MiniMELF | | MELF | |
|-----|----------|------|--------------|------|
| | Min | Max | Min | Max |
| A | 3.30 | 3.70 | 4.80 | 5.20 |
| B | 1.30 | 1.60 | 2.40 | 2.60 |
| C | 0.28 | 0.50 | 0.55 Nominal | |

QuadroMELF / MicroMELF



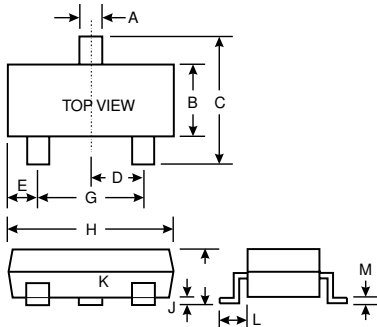
| Dim | QuadroMELF | | MicroMELF | |
|-----|---------------------------|-----|----------------------------|------|
| | Min | Max | Min | Max |
| A | 3.3 | 3.7 | 1.8 | 2.0 |
| B | 1.4 | 1.6 | 1.20 | 1.25 |
| C | 1.7 \varnothing Typical | | 1.35 \varnothing Typical | |
| D | 0.3 Typical | | — | |

SOD-123 / SOD-323 / SOD-523 / SOD-723



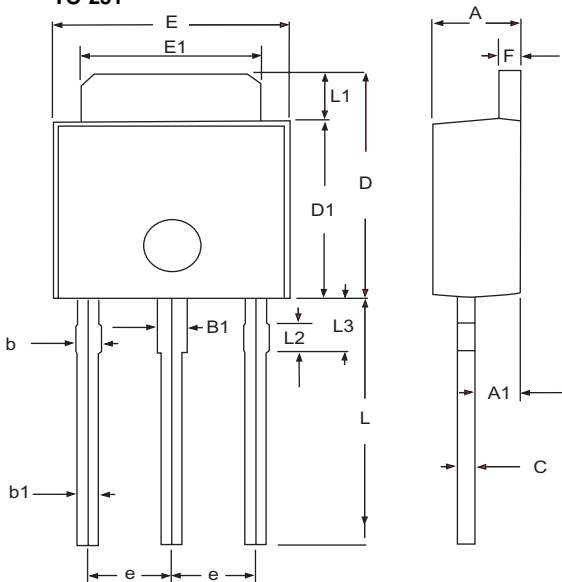
| Dim | SOD-123 | | SOD-323 | | SOD-523 | |
|-----|--------------|------|---------|------|----------------------|------|
| | Min | Max | Min | Max | Min | Max |
| A | 3.55 | 3.85 | 2.30 | 2.70 | 1.50 | 1.70 |
| B | 2.55 | 2.85 | 1.60 | 1.80 | 1.10 | 1.30 |
| C | 1.40 | 1.70 | 1.15 | 1.35 | 0.25 | 0.35 |
| D | — | 1.35 | 0.80 | 1.10 | 0.70 | 0.90 |
| E | 0.55 Typical | | 0.25 | 0.40 | 0.10 | 0.20 |
| G | 0.25 | — | 0.15 | 0.45 | 0.50 | 0.70 |
| H | 0.15 Typical | | 0.10 | 0.25 | All Dimensions in mm | |
| J | — | 0.10 | — | 0.10 | | |

SOT-23 / SC-59 / SOT-323 / SOT-523

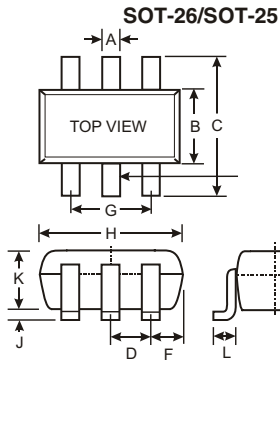


| Dim | SOT-23 | | SC-59 | | SOT-323 / SOT-523 | |
|-----|--------|-------|-------|------|-------------------|-------------|
| | Min | Max | Min | Max | Min | Max |
| A | 0.37 | 0.51 | 0.30 | 0.50 | 0.30 / 0.15 | 0.40 / 0.22 |
| B | 1.19 | 1.40 | 1.40 | 1.80 | 1.15 / 0.75 | 1.35 / 0.85 |
| C | 2.10 | 2.50 | 2.50 | 3.00 | 2.00 / 1.45 | 2.20 / 1.75 |
| D | 0.89 | 1.05 | 0.85 | 1.05 | 0.65 / 0.5 | |
| E | 0.45 | 0.61 | 0.30 | 0.70 | 0.30 / - | 0.40 / - |
| G | 1.78 | 2.05 | 1.70 | 2.10 | 1.20 / 0.9 | 1.40 / 1.1 |
| H | 2.65 | 3.05 | 2.70 | 3.10 | 1.80 / 1.5 | 2.20 / 1.7 |
| J | 0.013 | 0.15 | — | 0.10 | - | 0.10 |
| K | 0.89 | 1.10 | 1.00 | 1.40 | 0.90 / 0.6 | 1.00 / 0.8 |
| L | 0.45 | 0.61 | 0.55 | 0.70 | 0.25 / 0.1 | 0.40 / 0.3 |
| M | 0.076 | 0.178 | 0.10 | 0.35 | 0.10 / 0.1 | 0.25 / 0.2 |

TO-251



| SYMBOLS | MILLIMETERS | | INCHES | |
|---------|-------------|-------|--------|-------|
| | MIN | MAX | MIN | MAX |
| A | 2.20 | 2.40 | 0.087 | 0.095 |
| A1 | 1.100 | 1.300 | 0.043 | 0.051 |
| B1 | 0.650 | 1.050 | 0.026 | 0.041 |
| b | 0.500 | 0.900 | 0.020 | 0.035 |
| b1 | 0.400 | 0.800 | 0.016 | 0.32 |
| C | 0.400 | 0.600 | 0.016 | 0.024 |
| D | 6.700 | 7.300 | 0.264 | 0.287 |
| D1 | 5.400 | 5.650 | 0.213 | 0.222 |
| E | 6.40 | 6.650 | 0.252 | 0.262 |
| e | 2.100 | 2.500 | 0.083 | 0.098 |
| F | 0.400 | 0.600 | 0.016 | 0.024 |
| L | 7.000 | 8.000 | 0.276 | 0.315 |
| L1 | 1.300 | 1.700 | 0.051 | 0.067 |
| L2 | 0.700 | 0.900 | 0.028 | 0.035 |
| L3 | 1.400 | 1.800 | 0.055 | 0.071 |

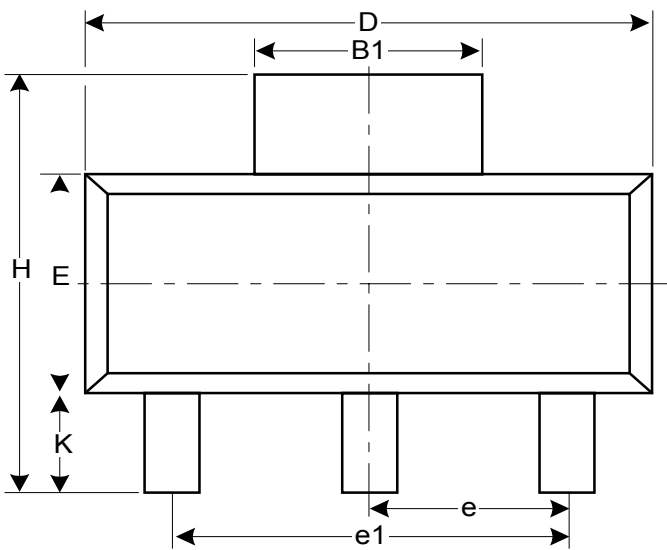


| SOT-363/353 | | |
|-------------|--------------|------|
| Dim | Min | Max |
| A | 0.10 | 0.30 |
| B | 1.15 | 1.35 |
| C | 2.00 | 2.20 |
| D | 0.65 Nominal | |
| F | 0.30 | 0.40 |
| H | 1.80 | 2.20 |
| J | — | 0.10 |
| K | 0.90 | 1.00 |
| L | 0.25 | 0.40 |
| M | 0.10 | 0.25 |
| α | 0° | 8° |

| SOT-26/25 | | | |
|-----------|-------|------|------|
| Dim | Min | Max | Typ |
| A | 0.35 | 0.50 | 0.38 |
| B | 1.50 | 1.70 | 1.60 |
| C | 2.70 | 3.00 | 2.80 |
| D | — | — | 0.95 |
| F | — | — | 0.55 |
| H | 2.90 | 3.10 | 3.00 |
| J | 0.013 | 0.10 | 0.05 |
| K | 1.00 | 1.30 | 1.10 |
| L | 0.35 | 0.55 | 0.40 |
| M | 0.10 | 0.20 | 0.15 |
| α | 0° | 8° | — |

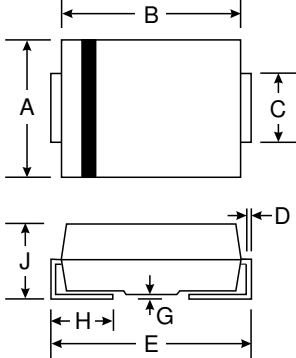
| SOT-563 | | | |
|----------------------|------|------|------|
| Dim | Min | Max | Typ |
| A | 0.15 | 0.30 | 0.25 |
| B | 1.10 | 1.25 | 1.20 |
| C | 1.55 | 1.70 | 1.60 |
| D | 0.50 | | |
| G | 0.90 | 1.10 | 1.00 |
| H | 1.50 | 1.70 | 1.60 |
| K | 0.56 | 0.60 | 0.60 |
| L | 0.15 | 0.25 | 0.20 |
| M | 0.10 | 0.18 | 0.11 |
| All Dimensions in mm | | | |

SOT-223



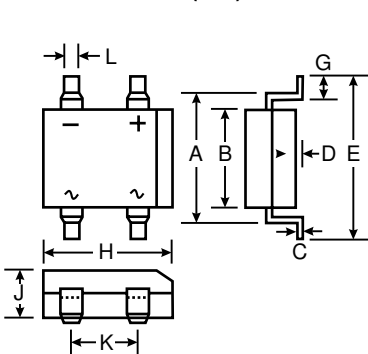
| Symbol | Dimensions In Millimeters | | |
|----------|---------------------------|------|------------|
| | Min. | Nom. | Max. |
| A(Thin) | 1.50 | 1.65 | 1.80 |
| A1 | 0.02 | 0.05 | 0.08 |
| B | 0.60 | 0.70 | 0.80 |
| B1 | 2.90 | - | 3.15(Ref.) |
| c | 0.28 | 0.30 | 0.32 |
| D | 6.30 | 6.50 | 6.70 |
| E | 3.30 | 3.50 | 3.70 |
| e | 2.3 Basic | | |
| e1 | 4.6 Basic | | |
| H | 6.70 | 7.00 | 7.30 |
| L | 0.91 | 1.00 | 1.10 |
| K | 1.50 | 1.75 | 2.00 |
| α | 0° | 5° | 10° |
| β | - | 13° | - |

SMA, SMB, SMC



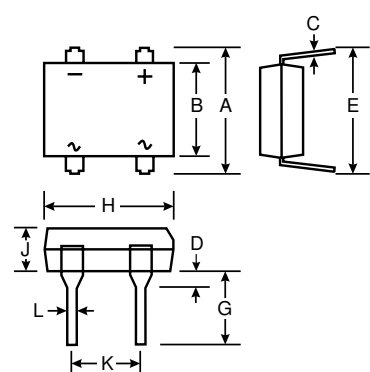
| Dim | SMA | | SMB | | SMC | |
|-----|------|------|------|------|------|------|
| | Min | Max | Min | Max | Min | Max |
| A | 2.29 | 2.92 | 3.30 | 3.94 | 5.59 | 6.22 |
| B | 4.00 | 4.60 | 4.06 | 4.57 | 6.60 | 7.11 |
| C | 1.27 | 1.63 | 1.96 | 2.21 | 2.75 | 3.18 |
| D | 0.15 | 0.31 | 0.15 | 0.31 | 0.15 | 0.31 |
| E | 4.80 | 5.59 | 5.00 | 5.59 | 7.75 | 8.13 |
| G | 0.10 | 0.20 | 0.10 | 0.20 | 0.10 | 0.20 |
| H | 0.76 | 1.52 | 0.76 | 1.52 | 0.76 | 1.52 |
| J | 2.01 | 2.62 | 2.00 | 2.62 | 2.00 | 2.62 |

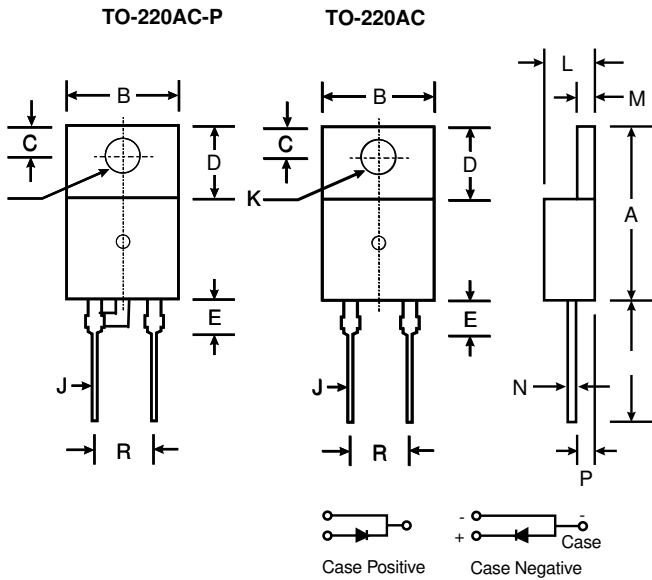
DF-S / MBS(MDI)



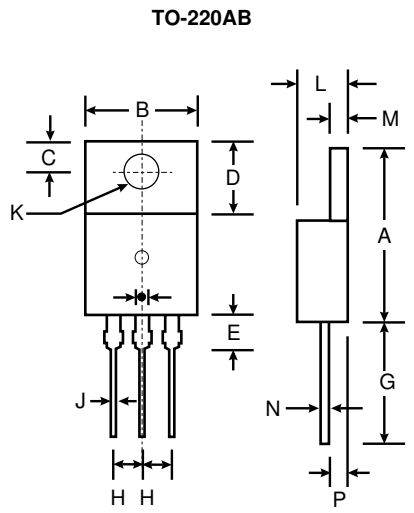
| Dim | DF-S | | MBS (MDI) | | DF-M | |
|-----|-------|-------|-----------|------|------|------|
| | Min | Max | Min | Max | Min | Max |
| A | 7.40 | 7.90 | 5.43 | 5.75 | 7.40 | 7.90 |
| B | 6.20 | 6.50 | 3.6 | 4.0 | 6.20 | 6.50 |
| C | 0.22 | 0.30 | 0.15 | 0.35 | 0.22 | 0.30 |
| D | 0.076 | 0.33 | 0.05 | 0.20 | 1.27 | 2.03 |
| E | — | 10.40 | — | 7.0 | 7.60 | 8.90 |
| G | 1.02 | 1.53 | 0.70 | 1.10 | 3.81 | 4.69 |
| H | 8.13 | 8.51 | 4.5 | 4.9 | 8.13 | 8.51 |
| J | 2.40 | 3.40 | 2.8 | 2.9 | 2.40 | 3.40 |
| K | 5.00 | 5.20 | 2.5 | 2.7 | 5.00 | 5.20 |
| L | 1.00 | 1.20 | 0.50 | 0.80 | 0.46 | 0.58 |

DF-M

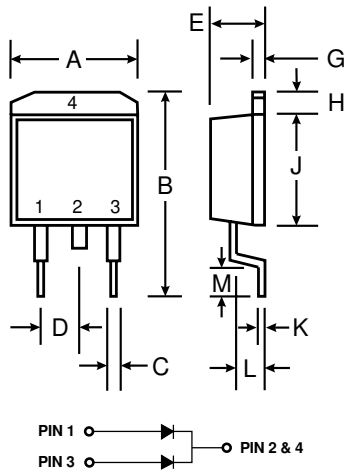




| Dim | Min | Max |
|-----|--------------------|--------------------|
| A | 14.22 | 15.88 |
| B | 9.65 | 10.67 |
| C | 2.54 | 3.43 |
| D | 5.84 | 6.86 |
| E | — | 6.35 |
| G | 12.70 | 14.73 |
| H | 2.29 | 2.79 |
| J | 0.51 | 1.14 |
| K | 3.53 \varnothing | 4.09 \varnothing |
| L | 3.56 | 4.83 |
| M | 1.14 | 1.40 |
| N | 0.30 | 0.64 |
| P | 2.03 | 2.92 |
| R | 4.83 | 5.33 |

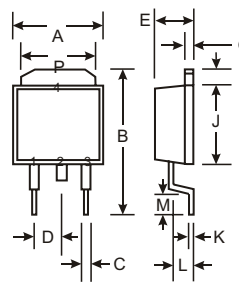


TO-263 / D²PAK



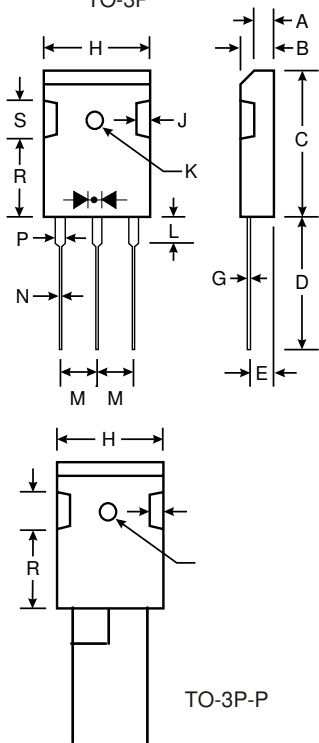
| Dim | Min | Max |
|-----|-------|-------|
| A | 9.65 | 10.69 |
| B | 14.60 | 15.88 |
| C | 0.51 | 1.14 |
| D | 2.29 | 2.79 |
| E | 4.37 | 4.83 |
| G | 1.14 | 1.40 |
| H | 1.14 | 1.40 |
| J | 8.25 | 9.25 |
| K | 0.30 | 0.64 |
| L | 2.03 | 2.92 |
| M | 2.29 | 2.79 |

TO-252 / DPAK



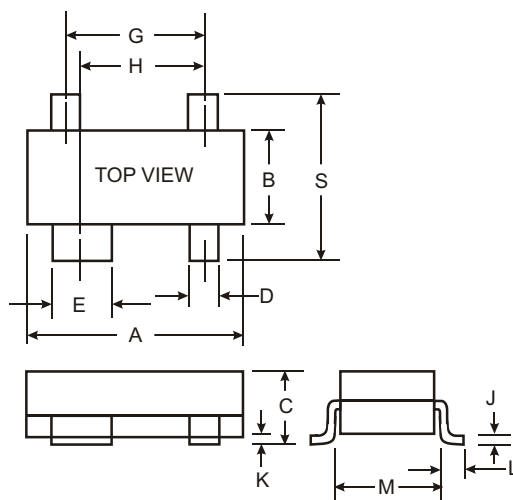
| Dim | Min | Max |
|-----|-------------|-----|
| A | 6.3 | 6.7 |
| B | — | 10 |
| C | 0.3 | 0.8 |
| D | 2.3 Nominal | |
| E | 2.1 | 2.5 |
| G | 0.4 | 0.6 |
| H | 1.2 | 1.6 |
| J | 5.3 | 5.7 |
| K | 0.5 Nominal | |
| L | 1.3 | 1.8 |
| M | 1.0 | — |
| P | 5.1 | 5.5 |

TO-3P



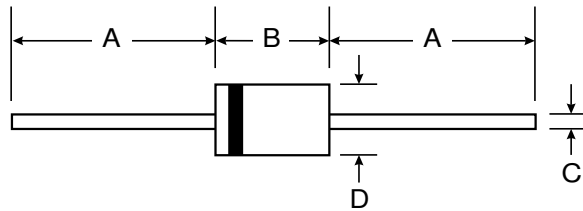
| Dim | Min | Max |
|-----|--------------------|--------------------|
| A | 3.20 | 3.50 |
| B | 4.59 | 5.16 |
| C | 20.80 | 21.30 |
| D | 19.70 | 20.20 |
| E | 2.10 | 2.40 |
| G | 0.51 | 0.76 |
| H | 15.90 | 16.40 |
| J | 1.70 | 2.70 |
| K | 3.10 \varnothing | 3.30 \varnothing |
| L | 3.50 | 4.51 |
| M | 5.20 | 5.70 |
| N | 1.12 | 1.22 |
| P | 2.90 | 3.30 |
| R | 11.70 | 12.80 |
| S | 4.30 Typical | |

SOT-343 / SOT-143



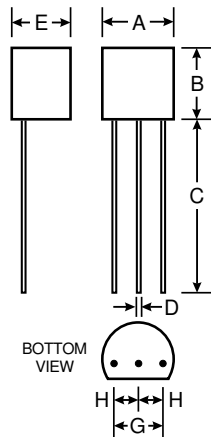
| SOT-143 | | |
|----------------------|----------|-------|
| Dim | Min | Max |
| A | 2.80 | 3.04 |
| B | 1.20 | 1.40 |
| C | 0.80 | 1.20 |
| D | 0.37 | 0.46 |
| E | 0.76 | 0.89 |
| G | 1.92 BSC | |
| H | 1.72 BSC | |
| J | 0.085 | 0.130 |
| K | 0.051 | 0.127 |
| L | 0.25 | 0.55 |
| M | 1.00 | 1.69 |
| S | 2.10 | 2.64 |
| All Dimensions in mm | | |

Axial Devices (Through-Hole)



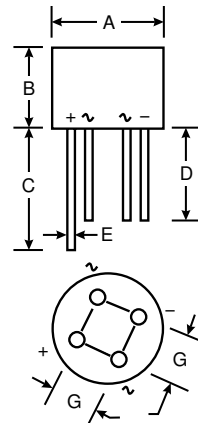
| Dim | A | | B | | C | | D | |
|---------------|-------|-----|------|------|-------|-------|------|------|
| | Min | Max | Min | Max | Min | Max | Min | Max |
| A-405 | 25.40 | — | 4.10 | 5.20 | 0.53 | 0.64 | 2.00 | 2.70 |
| DO-35 | 25.40 | — | — | 4.00 | — | 0.60 | — | 2.00 |
| DO-41 Plastic | 25.40 | — | 4.06 | 5.21 | 0.71 | 0.864 | 2.00 | 2.72 |
| DO-41 Glass | 25.40 | — | — | 4.70 | — | 0.863 | — | 2.71 |
| DO-15 | 25.40 | — | 5.50 | 7.62 | 0.686 | 0.889 | 2.60 | 3.60 |
| DO-201 | 25.40 | — | 8.50 | 9.53 | 0.96 | 1.06 | 4.80 | 5.21 |
| DO-201AD | 25.40 | — | 7.20 | 9.50 | 1.20 | 1.30 | 4.80 | 5.30 |
| R-6 | 25.40 | — | 8.60 | 9.10 | 1.20 | 1.30 | 8.60 | 9.10 |
| T-1 | 25.40 | — | 2.60 | 3.20 | 0.53 | 0.64 | 2.20 | 2.60 |
| 5W | 25.40 | — | 8.38 | 8.89 | 0.94 | 1.09 | 3.30 | 3.68 |
| 5KP | 25.40 | — | — | 8.60 | 0.95 | 1.07 | — | 9.53 |
| 5KW | 25.40 | — | — | 9.00 | 1.20 | 1.30 | — | 8.00 |

TO-92



| Dim | Min | Max |
|-----|-------|-------|
| A | 4.32 | 4.83 |
| B | 4.32 | 4.78 |
| C | 12.50 | 15.62 |
| D | 0.36 | 0.56 |
| E | 3.15 | 3.94 |
| G | 2.29 | 2.79 |
| H | 1.14 | 1.40 |

WOG / AM

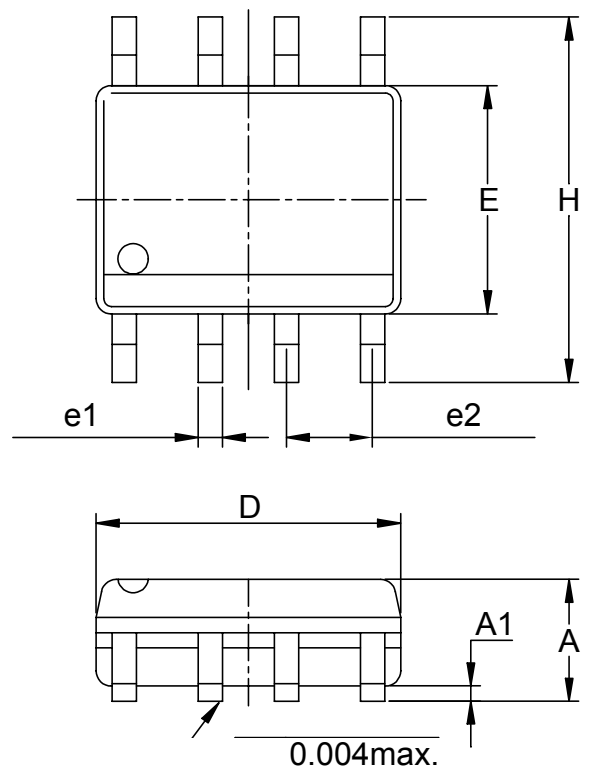


| Dim | Min | Max |
|-----|-------|------|
| A | 8.84 | 9.86 |
| B | 4.00 | 4.60 |
| C | 27.90 | — |
| D | 25.40 | — |
| E | 0.71 | 0.81 |
| G | 4.60 | 5.60 |

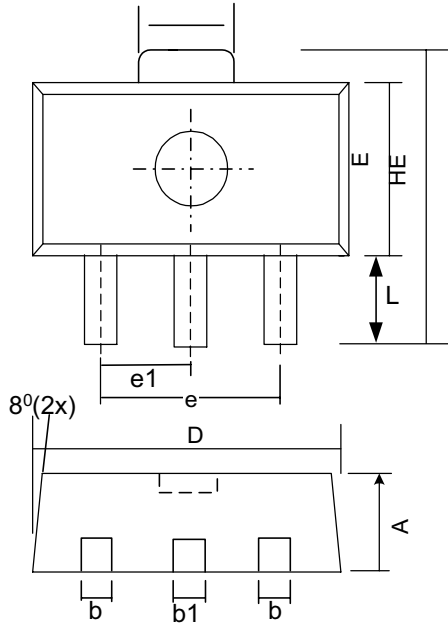
Lead configuration shown is for bulk product packaging only.
See ANSI/EIA-486 for Radial Tape specifications.

SOP-8 / TSSOP-8

| Dim | Millimeters SOP-8 / TSSOP-8 | |
|-----|-----------------------------|-------------|
| | Min. | Max. |
| A | 1.35 / 1.0 | 1.75 / 1.2 |
| A1 | 0.10 / 0.1 | 0.25 / 0.15 |
| D | 4.80 / 2.9 | 5.00 / 3.1 |
| E | 3.80 / 4.3 | 4.00 / 4.5 |
| H | 5.80 / 6.2 | 6.20 / 6.6 |
| L | 0.40 / - | 1.27 / - |
| e1 | 0.33 / - | 0.51 / - |
| e2 | 1.27BSC / 0.65BSC | |

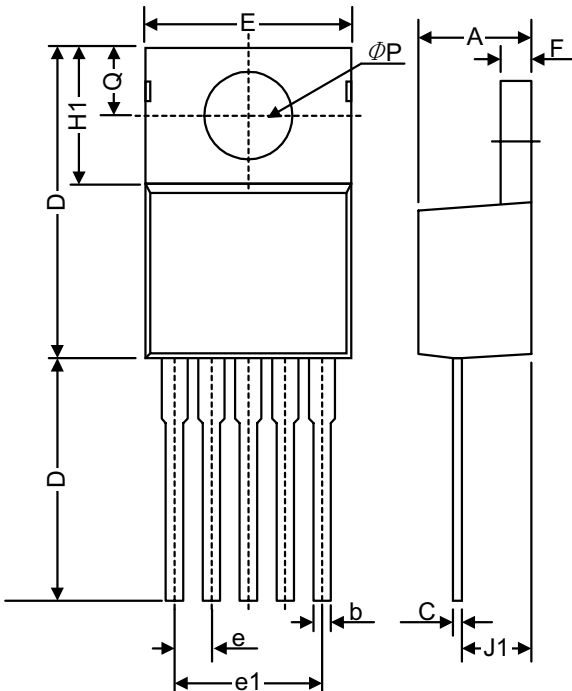


SOT89



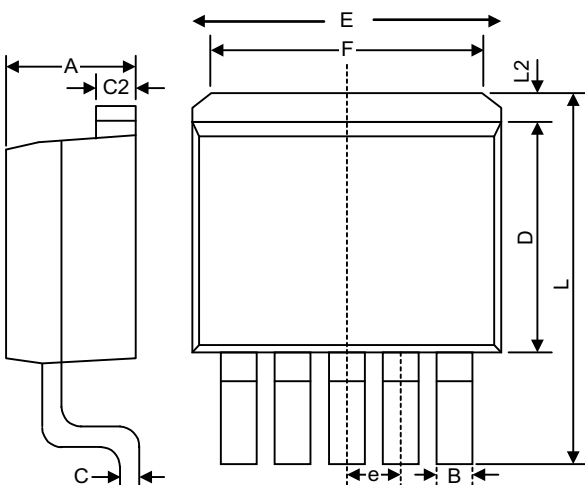
| Symbol | Dimensions In Millimeters | | |
|--------|---------------------------|------|------|
| | Min. | Nom. | Max. |
| A | 1.40 | 1.50 | 1.60 |
| B | 0.36 | 0.42 | 0.48 |
| b1 | 0.41 | 0.47 | 0.53 |
| C | 0.38 | 0.40 | 0.43 |
| D | 4.40 | 4.50 | 4.60 |
| D1 | 1.40 | 1.60 | 1.75 |
| E | 2.90 | 3.00 | 3.10 |
| e1 | 1.45 | 1.50 | 1.55 |
| E | 2.40 | 2.50 | 2.60 |
| HE | 3.94 | - | 4.25 |
| L | 0.80 | - | 1.20 |

TO-220-5

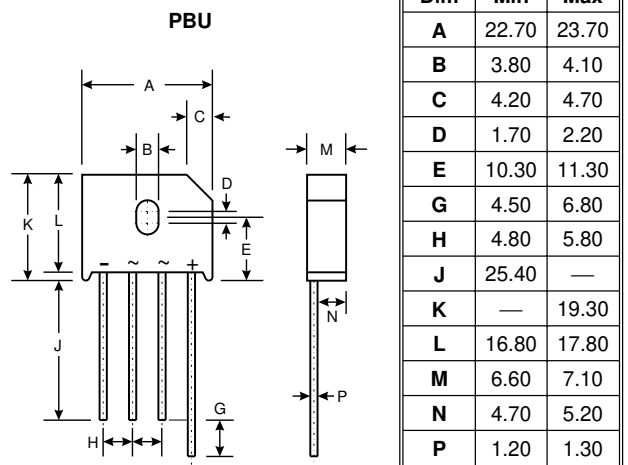
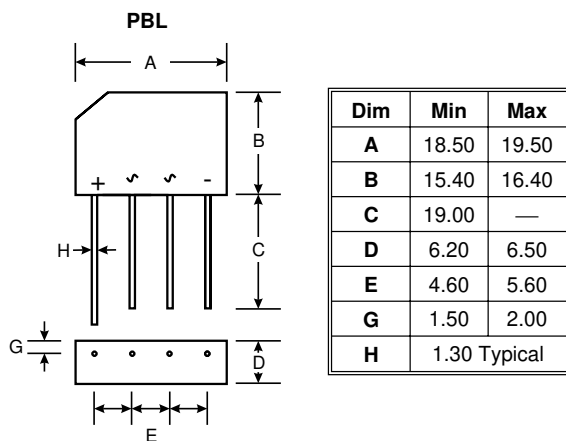
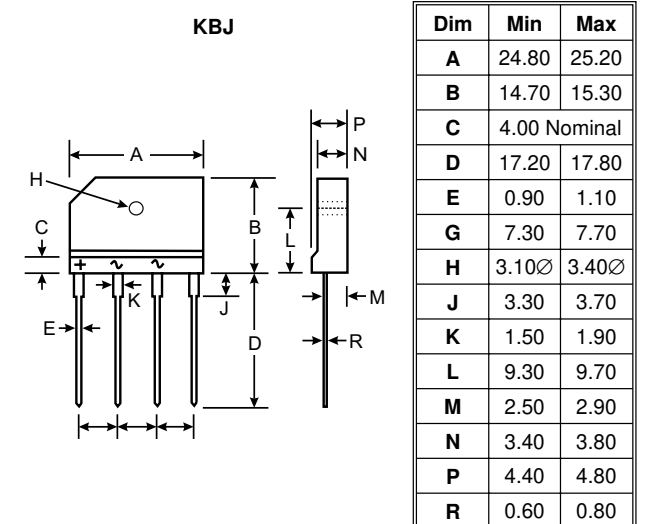
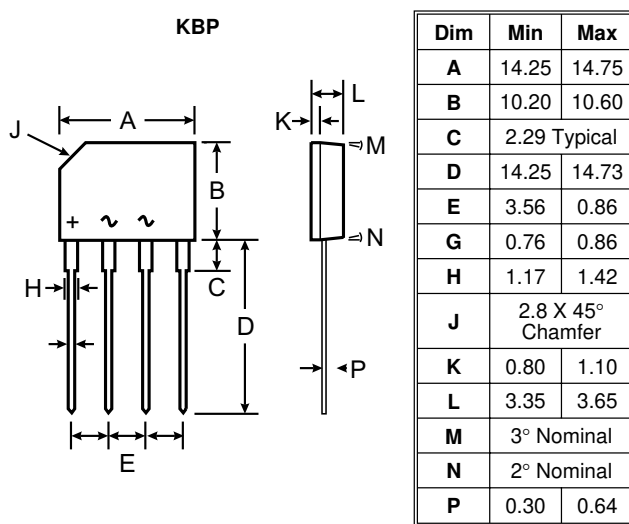
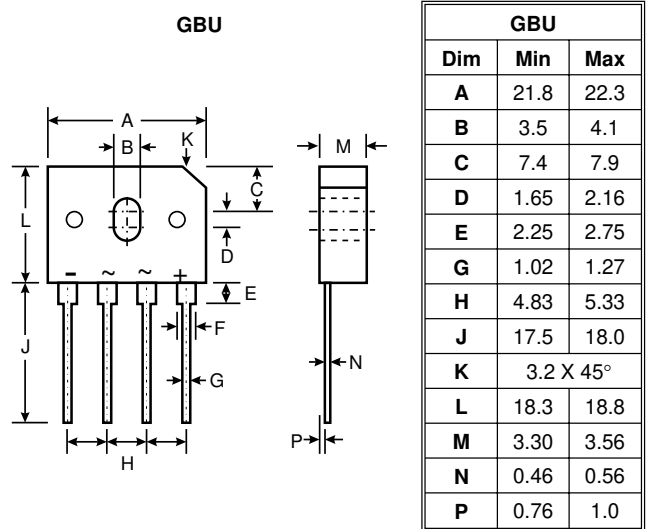
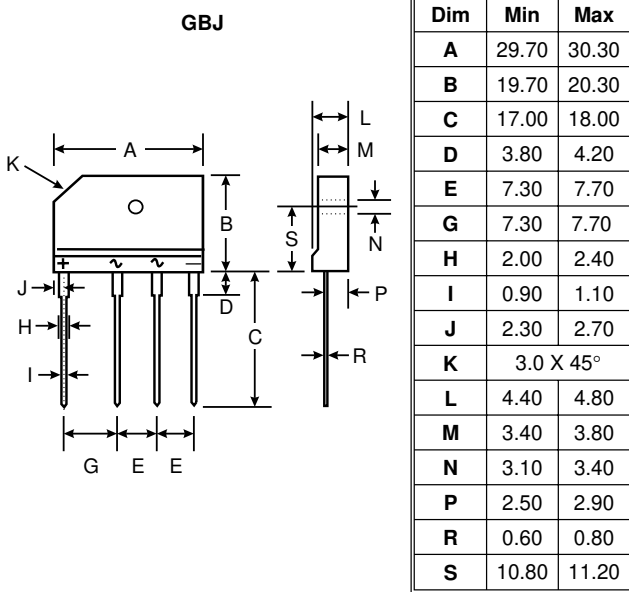


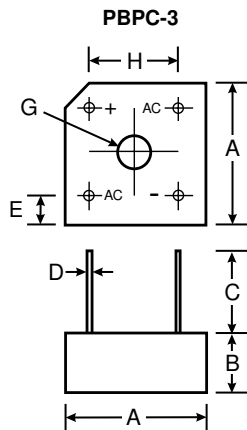
| Symbol | Dimensions In Millimeters | |
|----------|---------------------------|-------|
| | Min. | Max. |
| A | 4.06 | 4.8 |
| b | 0.76 | 1.02 |
| C | 0.36 | 0.64 |
| D | 14.22 | 15.49 |
| E | 9.78 | 10.54 |
| e | 1.57 | 1.85 |
| e(1) | 6.68 | 6.93 |
| F | 1.14 | 1.40 |
| H(1) | 5.46 | 6.86 |
| J(1) | 2.29 | 3.18 |
| L | 13.21 | 14.73 |
| ΦP | 3.68 | 3.94 |
| Q | 2.54 | 2.92 |

TO-263-5

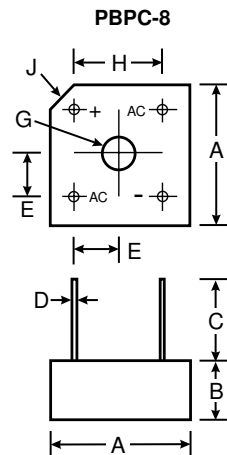


| Symbol | Dimensions In Millimeters | |
|--------|---------------------------|-------|
| | Min. | Max. |
| A | 4.06 | 4.83 |
| B | 0.76 | 1.02 |
| C | 0.36 | 0.64 |
| C2 | 1.14 | 1.40 |
| D | 8.64 | 9.65 |
| E | 9.78 | 10.54 |
| e | 1.57 | 1.85 |
| F | 6.60 | 7.11 |
| L | 15.11 | 15.37 |
| L2 | - | 1.40 |

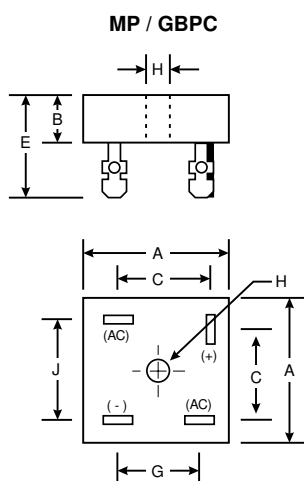




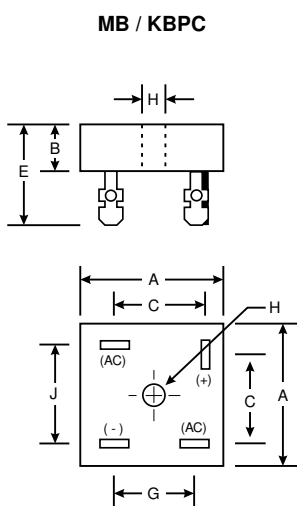
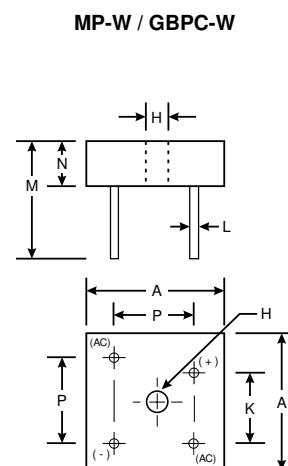
| Dim | Min | Max |
|-----|-------------------|-------|
| A | 14.73 | 15.75 |
| B | 5.84 | 6.86 |
| C | 19.00 | — |
| D | 0.76Ø Typical | |
| E | 1.70 | 2.70 |
| G | Hole for #6 screw | |
| | 3.60 | 4.00 |
| H | 10.30 | 11.30 |



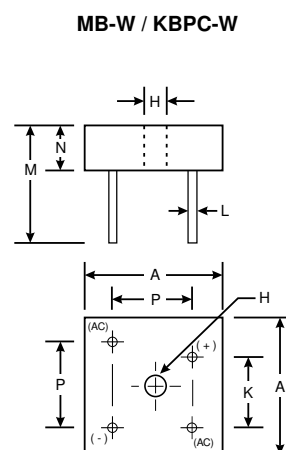
| Dim | Min | Max |
|-----|--------------------|-------|
| A | 18.54 | 19.56 |
| B | 6.35 | 7.60 |
| C | 22.20 | — |
| D | 1.27Ø Typical | |
| E | 5.33 | 7.37 |
| G | 3.60Ø | 4.00Ø |
| H | 12.70 Typical | |
| J | 2.38 X 45° Typical | |



| Dim | Min | Max |
|-----|--------------------|-------|
| A | 28.30 | 28.80 |
| B | 7.40 | 8.00 |
| C | 16.10 | 17.10 |
| E | 18.80 | 21.30 |
| G | 13.80 | 14.80 |
| H | Hole for #10 screw | |
| | 4.85Ø | 5.59Ø |
| J | 17.60 | 18.60 |
| K | 10.90 | 11.90 |
| L | 0.97Ø | 1.07Ø |
| M | 26.4 | — |
| N | 7.40 | 8.00 |
| P | 17.60 | 18.60 |



| Dim | Min | Max |
|-----|--------------------|-------|
| A | 28.40 | 28.70 |
| B | 10.97 | 11.23 |
| C | 15.50 | 17.60 |
| E | 22.86 | 25.40 |
| G | 13.30 | 15.30 |
| H | Hole for #10 screw | |
| | 4.85Ø | 5.59Ø |
| J | 17.10 | 19.10 |
| K | 10.40 | 12.40 |
| L | 0.97Ø Nominal | 1.07Ø |
| M | 30.50 | — |
| N | 10.97 | 11.23 |
| P | 17.10 | 19.10 |



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