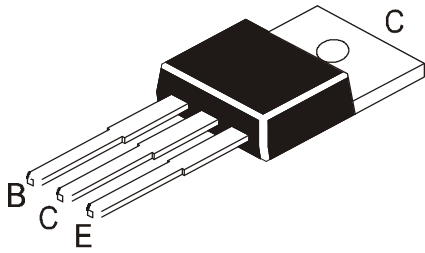


## NPN PLASTIC POWER TRANSISTORS



MJE13006  
MJE13007

TO-220  
Plastic Package

### Switchmode Series NPN Silicon Power Transistors

#### ABSOLUTE MAXIMUM RATINGS

DESCRIPTION	SYMBOL	MJE13006	MJE13007	UNIT
Collector Emitter Sustaining Voltage	$V_{CEO(sus)}$	300	400	V
Collector Emitter Voltage	$V_{CEV}$	600	700	V
Emitter Base Voltage	$V_{EBO}$		9	V
Collector Current Continuous	$I_C$		8	A
*Peak	$I_{CM}$		16	A
Base Current Continuous	$I_B$		4	A
*Peak	$I_{BM}$		8	A
Emitter Current Continuous	$I_E$		12	A
*Peak	$I_{EM}$		24	A
Power Dissipation upto $T_a=25^\circ\text{C}$ Derate above= $25^\circ\text{C}$	$P_D$		2 16	W mW/°C
Power Dissipation upto $T_c=25^\circ\text{C}$ Derate above= $25^\circ\text{C}$	$P_D$		80 640	W mW/°C
Operating And Storage Junction Temperature Range	$T_j, T_{stg}$		- 65 to +150	°C

\* Pulse Test: Pulse Width =5ms, Duty Cycle  $\leq 10\%$

#### THERMAL RESISTANCE

Junction to Case	$R_{th(j-c)}$	1.56	°C/W
Junction to Ambient in free air	$R_{th(j-a)}$	62.5	°C/W
Maximum Lead Temperature for Soldering Purpose 1/8" from Case for 5 Seconds	$T_L$	275	°C

#### ELECTRICAL CHARACTERISTICS ( $T_c=25^\circ\text{C}$ Unless Specified Otherwise)

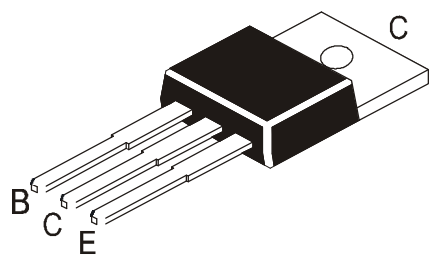
DESCRIPTION	SYMBOL	TEST CONDITION	MIN	TYP	MAX	UNIT
Collector Emitter sustaining voltage	** $V_{CEO(sus)}$	$I_C=10\text{mA}, I_B=0$ MJE13006 MJE13007	300 400			V V
Collector Cut Off Current	$I_{CEV}$	$V_{CEV}=\text{Rated Value}, V_{BE}(\text{off})=1.5\text{V}$ $T_c=100^\circ\text{C}$ $V_{CEV}=\text{Rated Value}, V_{BE}(\text{off})=1.5\text{V}$			1.0 5.0	mA mA
Emitter Cut Off Current	$I_{EBO}$	$V_{EB}=9\text{V}, I_C=0$			1.0	mA
DC Current Gain	** $h_{FE}$	$I_C=2\text{A}, V_{CE}=5\text{V}$ $I_C=5\text{A}, V_{CE}=5\text{V}$	8 5		60 30	

\*\*Pulse Test: Pulse Width=300ms, Duty Cycle  $\leq 2\%$

# NPN PLASTIC POWER TRANSISTORS

MJE13006  
MJE13007

TO-220  
Plastic Package



## ELECTRICAL CHARACTERISTICS ( $T_c=25^\circ\text{C}$ Unless Specified Otherwise)

DESCRIPTION	SYMBOL	TEST CONDITION	MIN	TYP	MAX	UNIT
Collector Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C=2A, I_B=0.4A$			1	V
		$I_C=5A, I_B=1A$			2	V
		$I_C=8A, I_B=2A$			3	V
		$I_C=5A, I_B=1A, T_c=100^\circ\text{C}$			3	V
Base Emitter Saturation Voltage	$V_{BE(sat)}$	$I_C=2A, I_B=0.4A$			1.2	V
		$I_C=5A, I_B=1A$			1.6	V
		$I_C=5A, I_B=1A, T_c=100^\circ\text{C}$			1.5	V
Current Gain-Bandwidth Product	$f_T$	$I_C=500mA, V_{CE}=10V, f=1MHz$	4			MHz
Output Capacitance	$C_{ob}$	$V_{CB}=10V, I_E=0, f=0.1MHz$		110		pF

## SWITCHING CHARACTERISTICS

Resistive Load	SYMBOL	TEST CONDITION	MIN	TYP	MAX	UNIT
Delay Time	$t_d$	$V_{CC}=125V, I_C=5A, I_{B1}=I_{B2}=1A,$ $t_p=25\mu s, \text{Duty Cycle} \leq 1\%$			0.1	$\mu s$
Rise Time	$t_r$				1.5	$\mu s$
Storage Time	$t_s$				3.0	$\mu s$
Fall Time	$t_f$				0.7	$\mu s$

## Inductive Load, Clamped

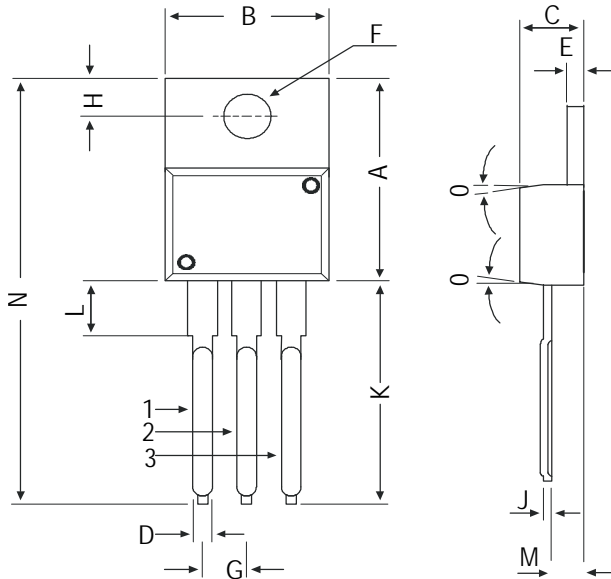
Voltage Storage Time	$t_{sv}$	$V_{Clamp}=300V, I_C=5A, I_{B1}=1A,$ $V_{BE(off)}=5V, T_c=100^\circ\text{C}$			2.3	$\mu s$
Crossover Time	$t_C$				0.7	$\mu s$

\*\*Pulse Test: Pulse Width=300ms, Duty Cycle $\leq$ 2%

**MJE13006  
MJE13007**

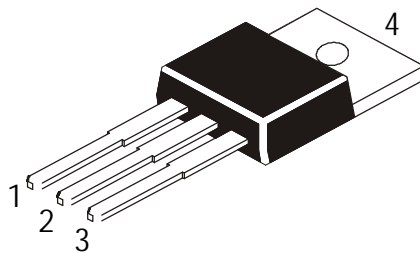
**TO-220  
Plastic Package**

**TO-220 Plastic Package**



DIM	MIN	MAX
A	14.42	16.51
B	9.63	10.67
C	3.56	4.83
D	—	0.90
E	1.15	1.40
F	3.75	3.88
G	2.29	2.79
H	2.54	3.43
J	—	0.56
K	12.70	14.73
L	2.80	4.07
M	2.03	2.92
N	—	31.24
O	7 DEG	

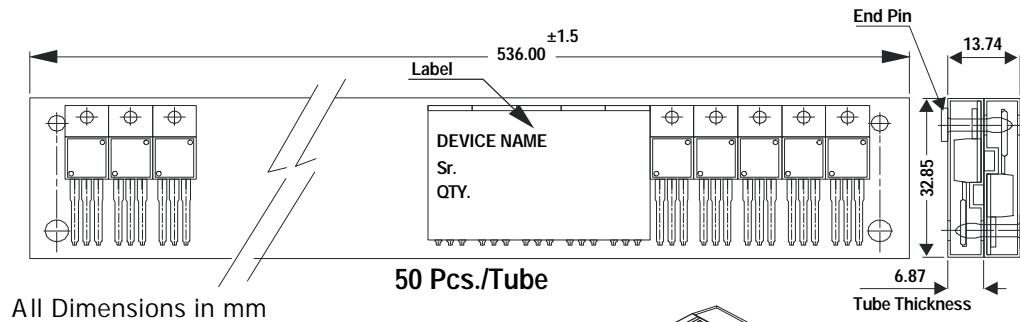
All diminsions in mm.



**Pin Configuration**

1. Base
2. Collector
3. Emitter
4. Collector

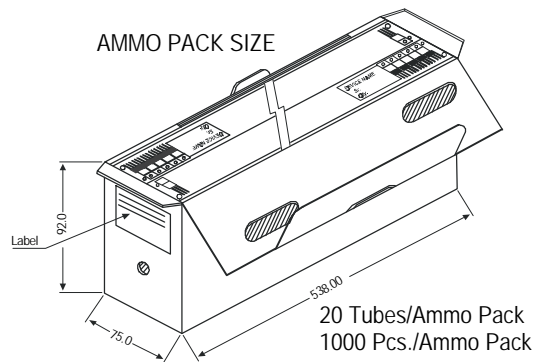
**TO-220 Tube Packing**



All Dimensions in mm

50 Pcs./Tube

AMMO PACK SIZE



20 Tubes/Ammo Pack  
1000 Pcs./Ammo Pack

**Packing Detail**

PACKAGE	STANDARD PACK		INNER CARTON BOX		OUTER CARTON BOX		
	Details	Net Weight/Qty	Size	Qty	Size	Qty	Gr Wt
TO-220	200 pcs/polybag	396 gm/200 pcs	3" x 7.5" x 7.5"	1.0K	17" x 15" x 13.5"	16.0K	36 kgs
	50 pcs/tube	120 gm/50 pcs	3.5" x 3.7" x 21.5"	1.0K	19" x 19" x 19"	10.0K	29 kgs