2SJ160, 2SJ161, 2SJ162

Silicon P-Channel MOS FET

HITACHI

ADE-208-1182 (Z)
1st. Edition
Mar. 2001

Application

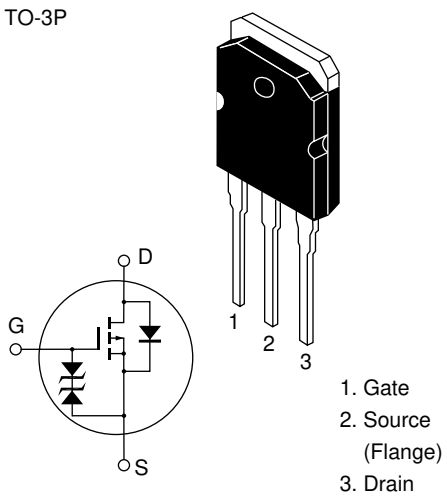
Low frequency power amplifier

Complementary pair with 2SK1056, 2SK1057 and 2SK1058

Features

- Good frequency characteristic
- High speed switching
- Wide area of safe operation
- Enhancement-mode
- Good complementary characteristics
- Equipped with gate protection diodes
- Suitable for audio power amplifier

Outline



Absolute Maximum Ratings (Ta = 25°C)

Item		Symbol	Ratings	Unit
Drain to source voltage	2SJ160	V_{DSX}	–120	V
	2SJ161		–140	
	2SJ162		–160	
Gate to source voltage		V_{GSS}	±15	V
Drain current		I_D	–7	A
Body to drain diode reverse drain current		I_{DR}	–7	A
Channel dissipation		Pch*[1]	100	W
Channel temperature		Tch	150	°C
Storage temperature		Tstg	–55 to +150	°C

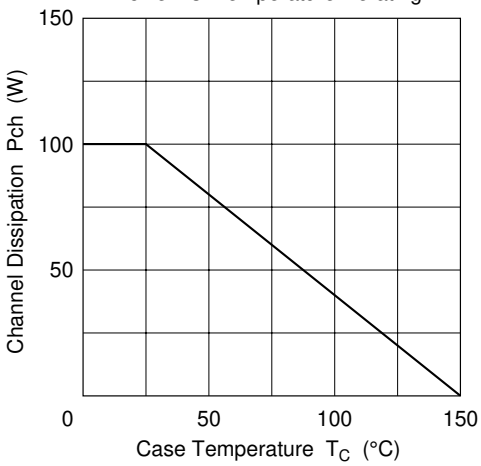
Note: 1. Value at T_C = 25°C

Electrical Characteristics (Ta = 25°C)

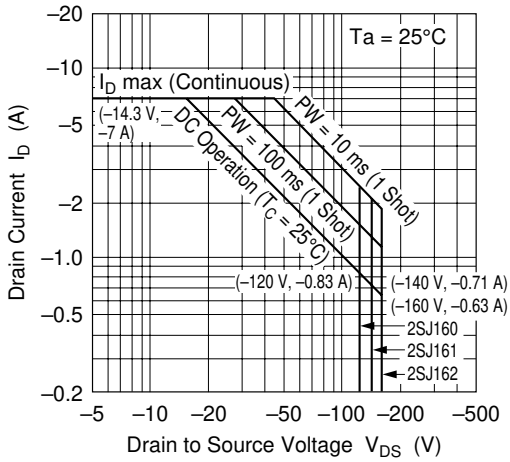
Item		Symbol	Min	Typ	Max	Unit	Test conditions
Drain to source breakdown voltage	2SJ160	$V_{(BR)DSX}$	–120	—	—	V	I_D = –10 mA , V_{GS} = 10 V
	2SJ161		–140	—	—	V	
	2SJ162		–160	—	—	V	
Gate to source breakdown voltage		$V_{(BR)GSS}$	±15	—	—	V	I_G = ±100 µA, V_{DS} = 0
Gate to source cutoff voltage		$V_{GS(off)}$	–0.15	—	–1.45	V	I_D = –100 mA, V_{DS} = –10 V
Drain to source saturation voltage		$V_{DS(sat)}$	—	—	–12	V	I_D = –7 A, V_{GD} = 0*[1]
Forward transfer admittance		$\|y_{fs}\|$	0.7	1.0	1.4	S	I_D = –3 A, V_{DS} = –10 V*[1]
Input capacitance		Ciss	—	900	—	pF	V_{GS} = 5 V, V_{DS} = –10V,
Output capacitance		Coss	—	400	—	pF	f = 1 MHz
Reverse transfer capacitance		Crss	—	40	—	pF	
Turn-on time		t_{on}	—	230	—	ns	V_{DD} = –20 V, I_D = –4 A
Turn-off time		t_{off}	—	110	—	ns	

Note: 1. Pulse test

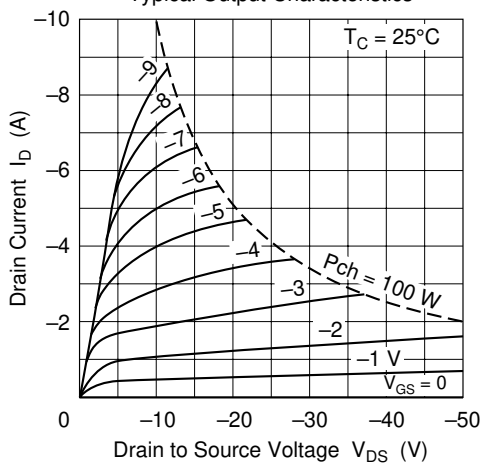
Power vs. Temperature Derating



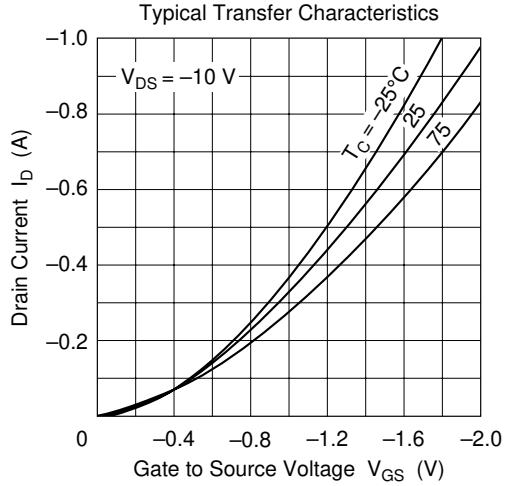
Maximum Safe Operation Area



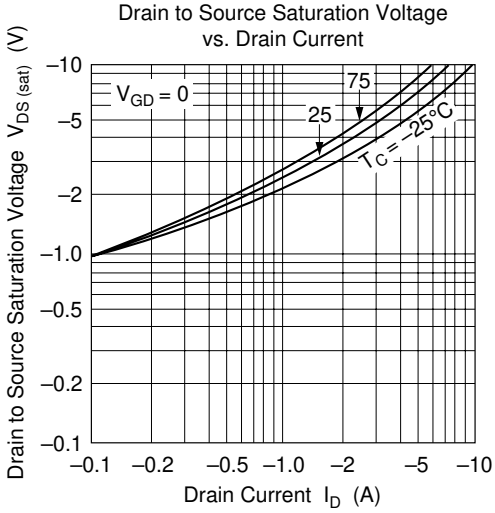
Typical Output Characteristics



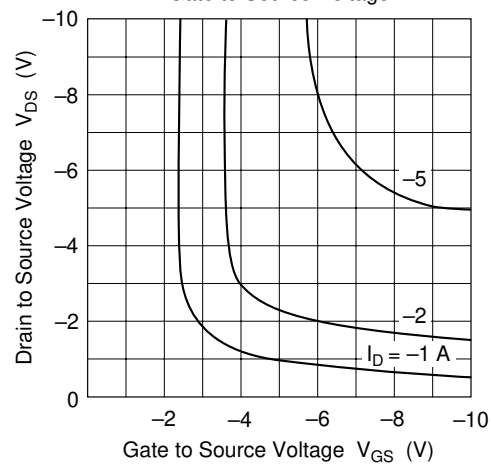
Typical Transfer Characteristics



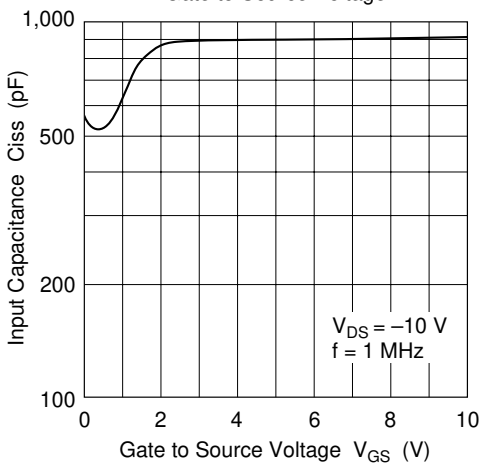
Drain to Source Saturation Voltage vs. Drain Current



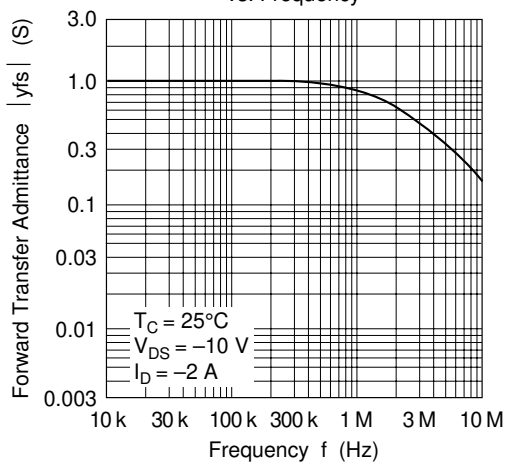
Drain to Source Voltage vs. Gate to Source Voltage

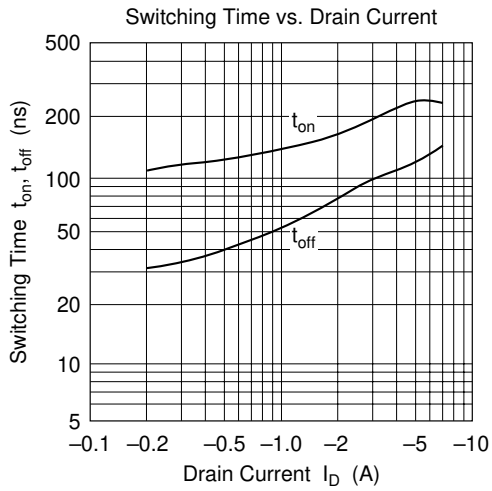


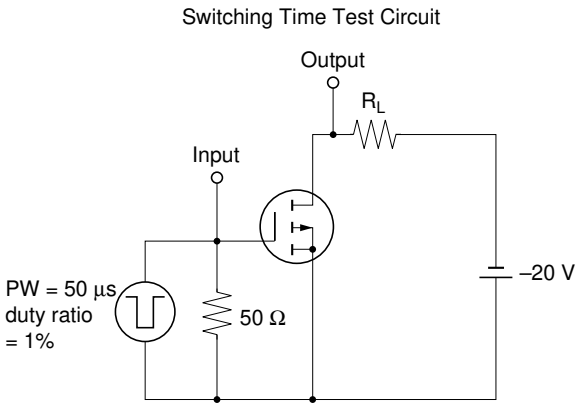
Input Capacitance vs. Gate to Source Voltage

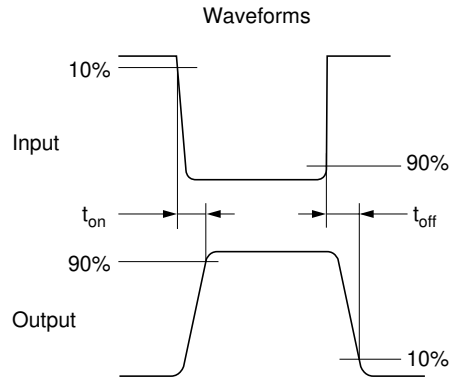


Forward Transfer Admittance vs. Frequency




Switching Time vs. Drain Current
Switching Time t_{on}, t_{off} (ns)
500
200
100
50
20
10
5
t_{on}
t_{off}
–0.1
–0.2
–0.5
–1.0
–2
–5
–10
Drain Current I_D (A)

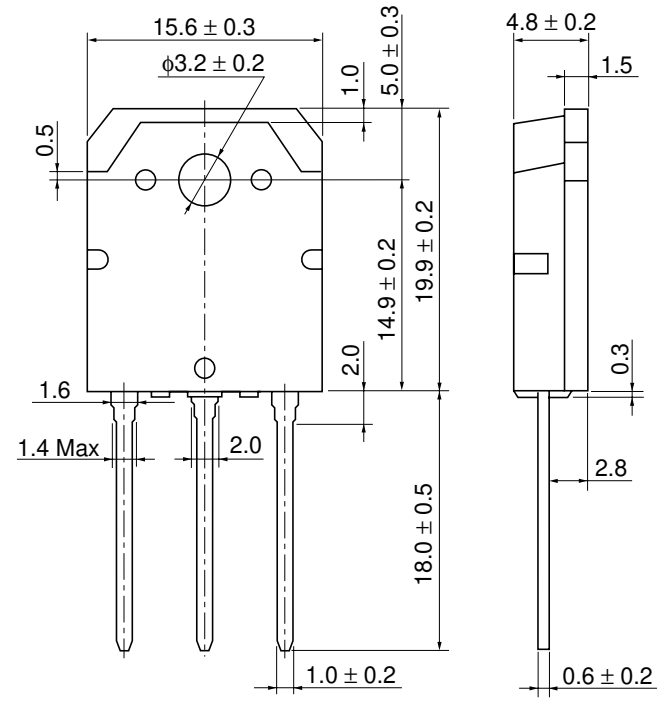

Switching Time Test Circuit
Output
R_L
Input
PW = 50 µs
duty ratio
= 1%
50 Ω
–20 V

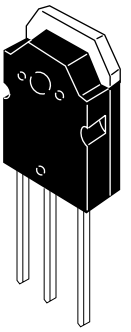

Waveforms
10%
Input
90%
t_{on}
t_{off}
90%
Output
10%

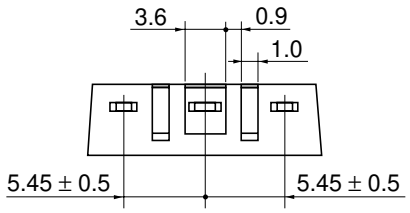
Package Dimensions

As of January, 2001

Unit: mm







Hitachi Code	TO-3P
JEDEC	—
EIAJ	Conforms
Mass (reference value)	5.0 g

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