

H5N2801P

Silicon N Channel MOS FET
High Speed Power Switching

REJ03G0118-0100Z

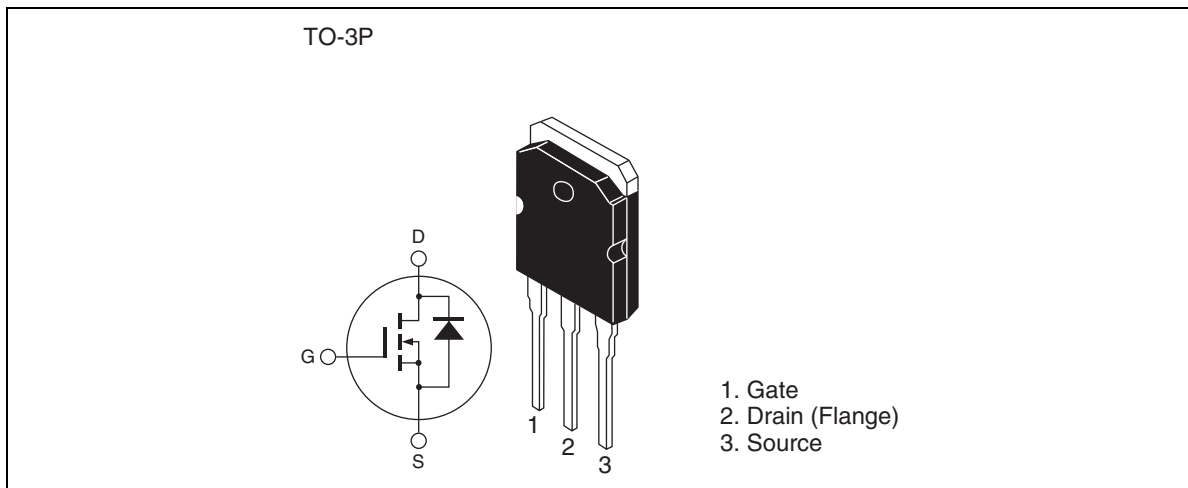
Rev.1.00

Oct.01.2003

www.DataSheet4U.com **Features**

- Low on-resistance
- Low drive current
- High speed switching

Outline



H5N2801P

Absolute Maximum Rating

(Ta = 25°C)

Item	Symbol	Rating	Unit
Drain to source voltage	V _{DSS}	280	V
Gate to source voltage	V _{GSS}	±30	V
Drain current	I _D	60	A
Drain peak current	I _{D (pulse)} ^{Note1}	240	A
Body-drain diode reverse drain current	I _{DR}	60	A
Avalanche current	I _{AP} ^{Note3}	35	A
Avalanche energy	E _{AR} ^{Note3}	74.5	mJ
Channel dissipation	P _{ch} ^{Note2}	150	W
Channel to case thermal impedance	θ _{ch-c}	0.833	°C /W
Channel temperature	T _{ch}	150	°C
Storage temperature	T _{stg}	-55 to +150	°C

Notes: 1. PW ≤ 10 μs, duty cycle ≤ 1%
2. Value at T_c = 25°C
3. ST_{ch} = 25°C, T_{ch} ≤ 150°C

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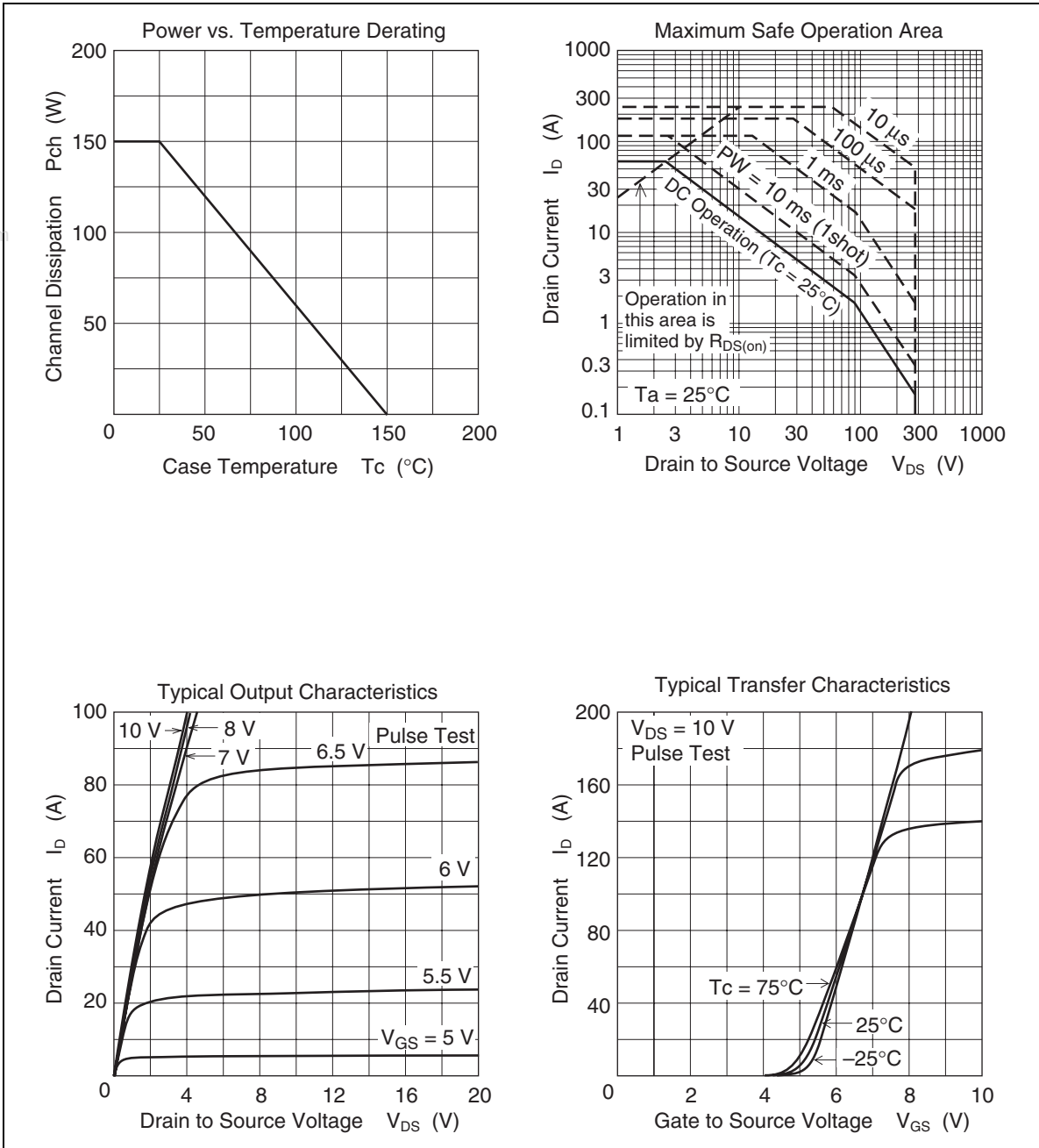
Electrical Characteristics

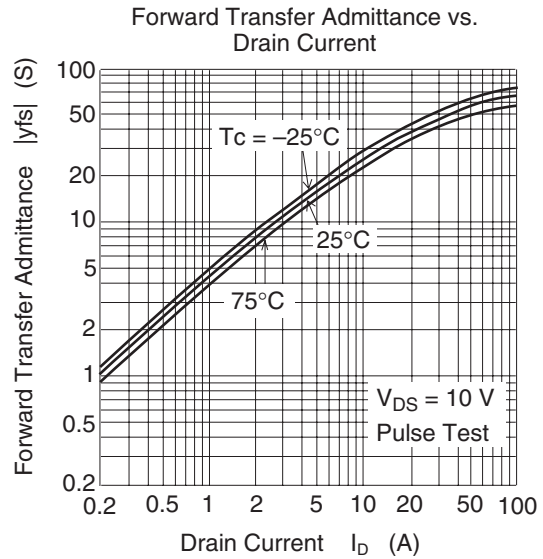
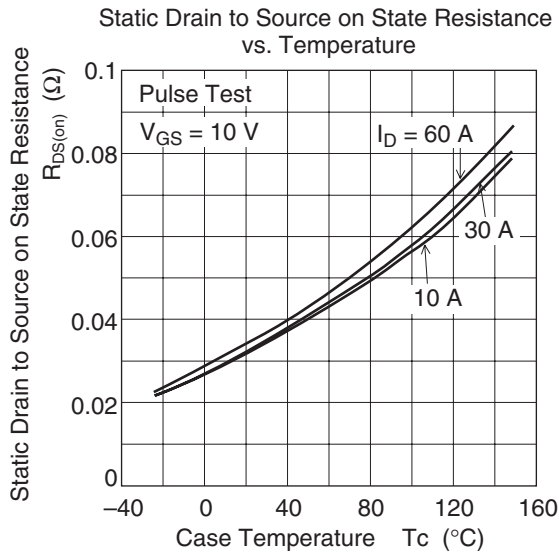
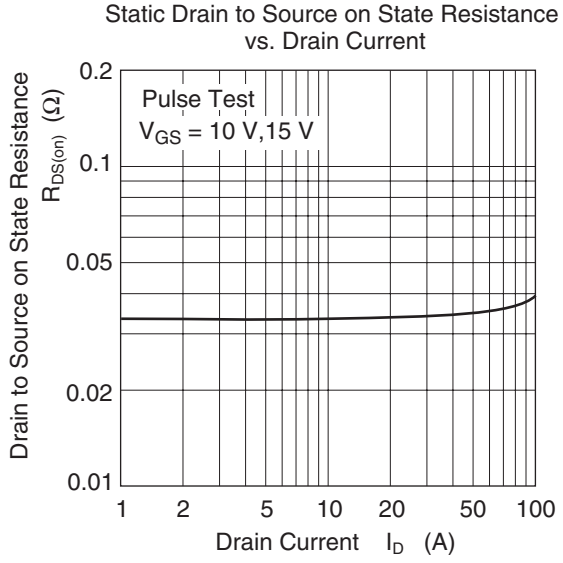
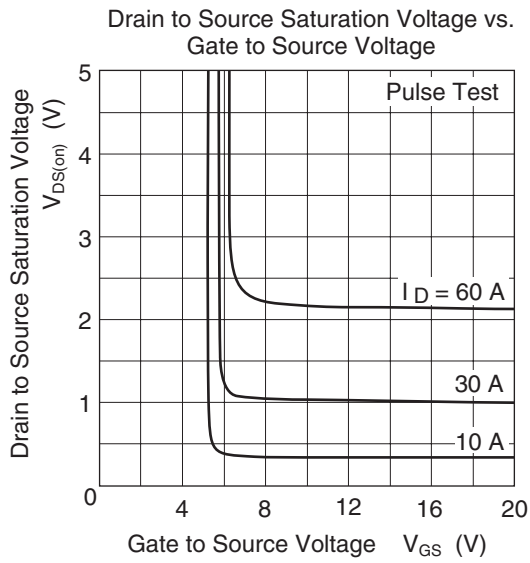
(Ta = 25°C)

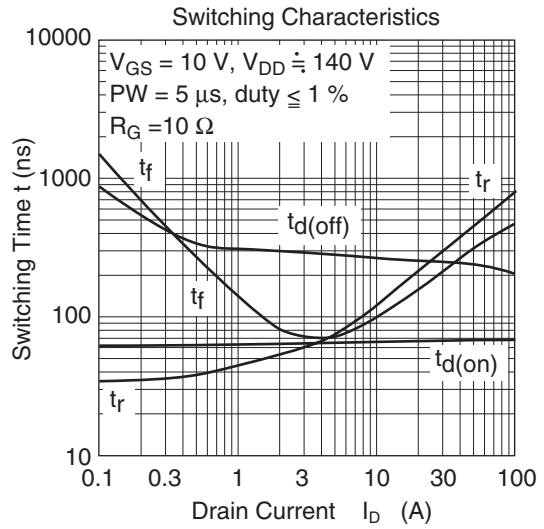
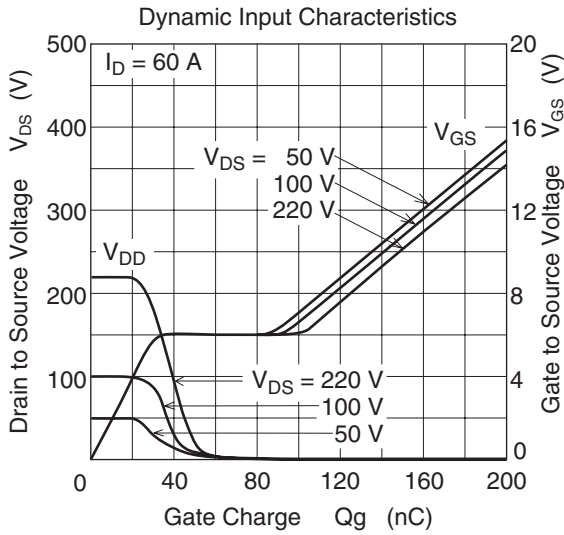
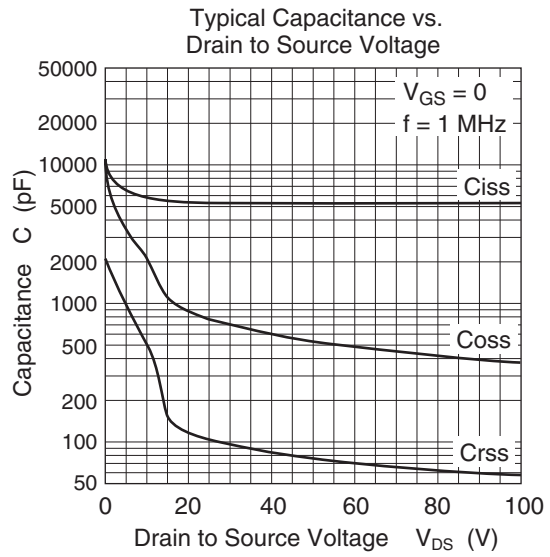
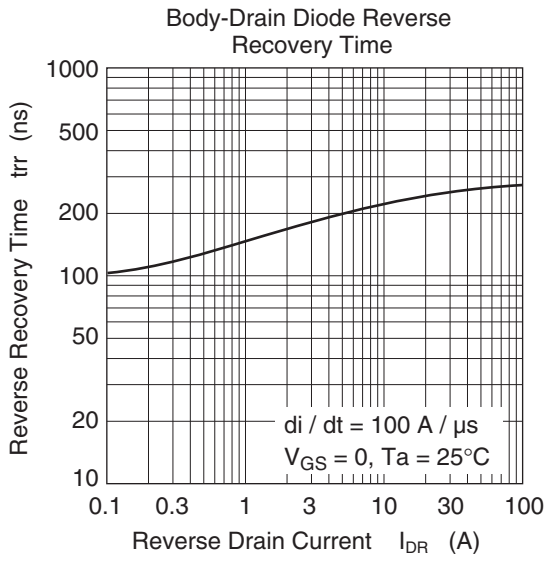
Item	Symbol	Min	Typ	Max	Unit	Test condition
Drain to Source breakdown voltage	$V_{(BR)DSS}$	280	—	—	V	$I_D = 10 \text{ mA}$, $V_{GS} = 0$
Zero gate voltage drain current	I_{DSS}	—	—	1	μA	$V_{DS} = 280 \text{ V}$, $V_{GS} = 0$
Gate to source leak current	I_{GSS}	—	—	± 0.1	μA	$V_{GS} = \pm 30 \text{ V}$, $V_{DS} = 0$
Gate to source cutoff voltage	$V_{GS(off)}$	3.0	—	4.5	V	$V_{DS} = 10 \text{ V}$, $I_D = 1 \text{ mA}$
Forward transfer admittance	$ y_{fs} $	27	45	—	S	$I_D = 30 \text{ A}$, $V_{DS} = 10 \text{ V}$ ^{Note4}
Static drain to source on state resistance	$R_{DS(on)}$	—	0.034	0.043	Ω	$I_D = 30 \text{ A}$, $V_{GS} = 10 \text{ V}$ ^{Note4}
Input capacitance	C_{iss}	—	5400	—	pF	$V_{DS} = 25 \text{ V}$
Output capacitance	C_{oss}	—	770	—	pF	$V_{GS} = 0$
Reverse transfer capacitance	C_{rss}	—	100	—	pF	$f = 1 \text{ MHz}$
Turn-on delay time	$t_{d(on)}$	—	70	—	ns	$I_D = 30 \text{ A}$
Rise time	t_r	—	300	—	ns	$R_L = 4.7 \Omega$
Turn-off delay time	$t_{d(off)}$	—	250	—	ns	$V_{GS} = 10 \text{ V}$
Fall time	t_f	—	210	—	ns	$R_g = 10 \Omega$
Total gate charge	Q_g	—	148	—	nC	$V_{DD} = 220 \text{ V}$
Gate to source charge	Q_{gs}	—	30	—	nC	$V_{GS} = 10 \text{ V}$
Gate to drain charge	Q_{gd}	—	73	—	nC	$I_D = 60 \text{ A}$
Body-drain diode forward voltage	V_{DF}	—	1.10	1.65	V	$I_F = 60 \text{ A}$, $V_{GS} = 0$ ^{Note4}
Body-drain diode reverse recovery time	t_{rr}	—	270	—	ns	$I_F = 60 \text{ A}$, $V_{GS} = 0$ $di_F/dt = 100 \text{ A}/\mu\text{s}$
Body-drain diode reverse recovery charge	Q_{rr}	—	2.8	—	μC	

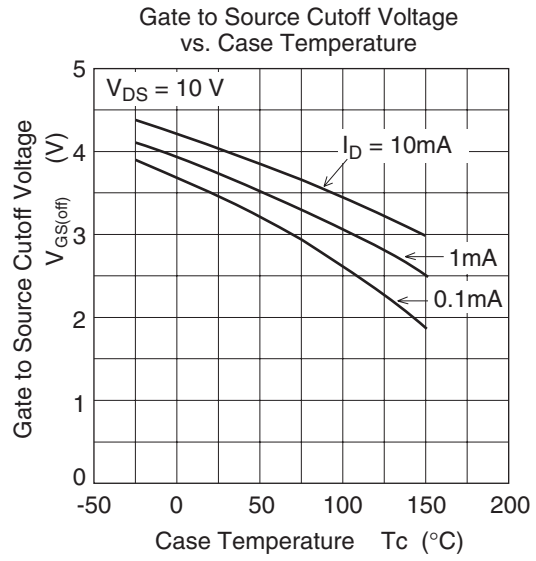
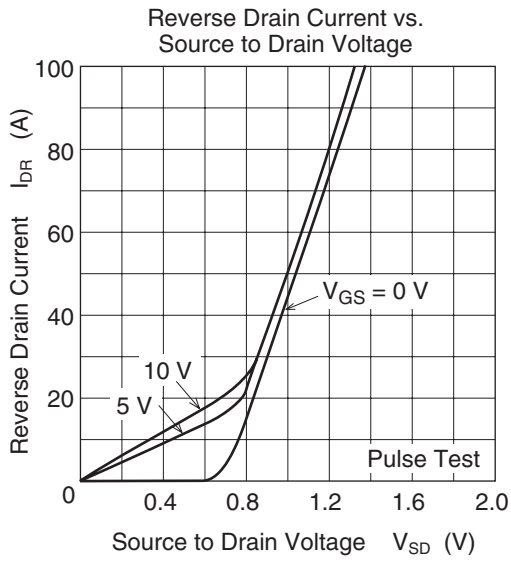
Notes: 4. Pulse test

Main Characteristics

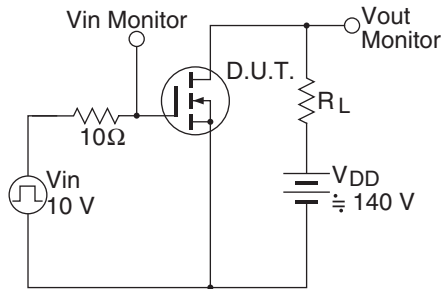




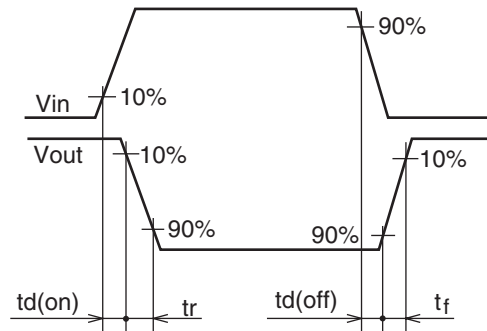


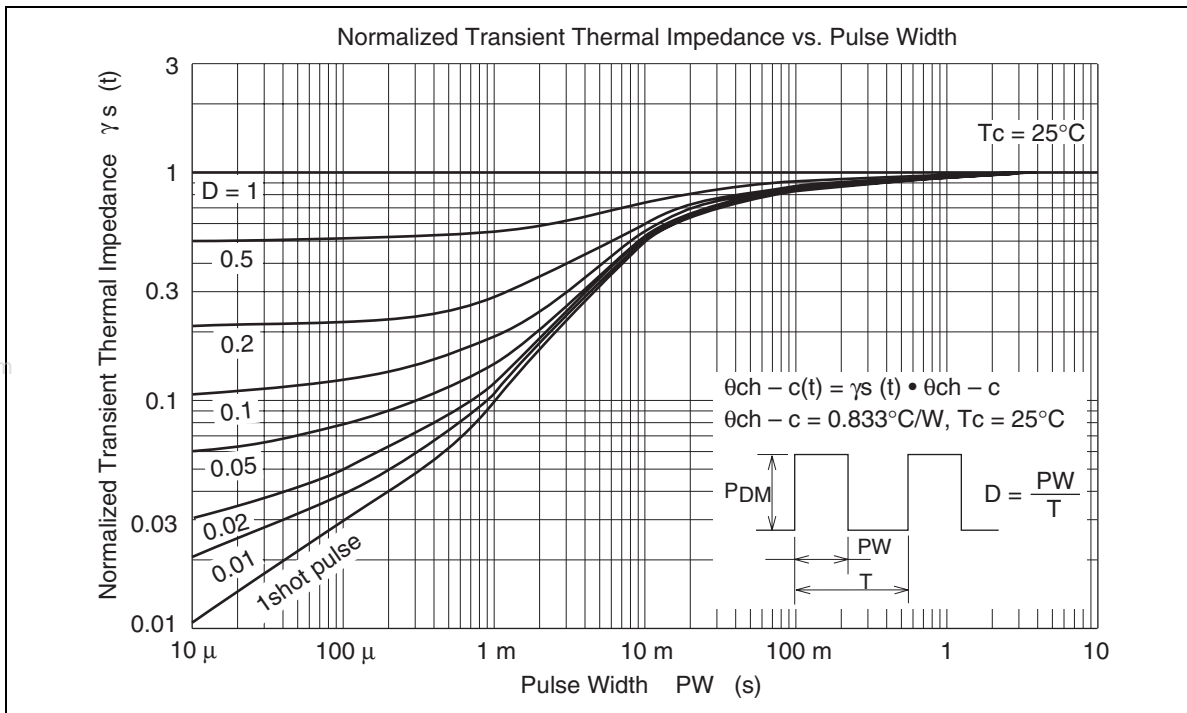


Switching Time Test Circuit

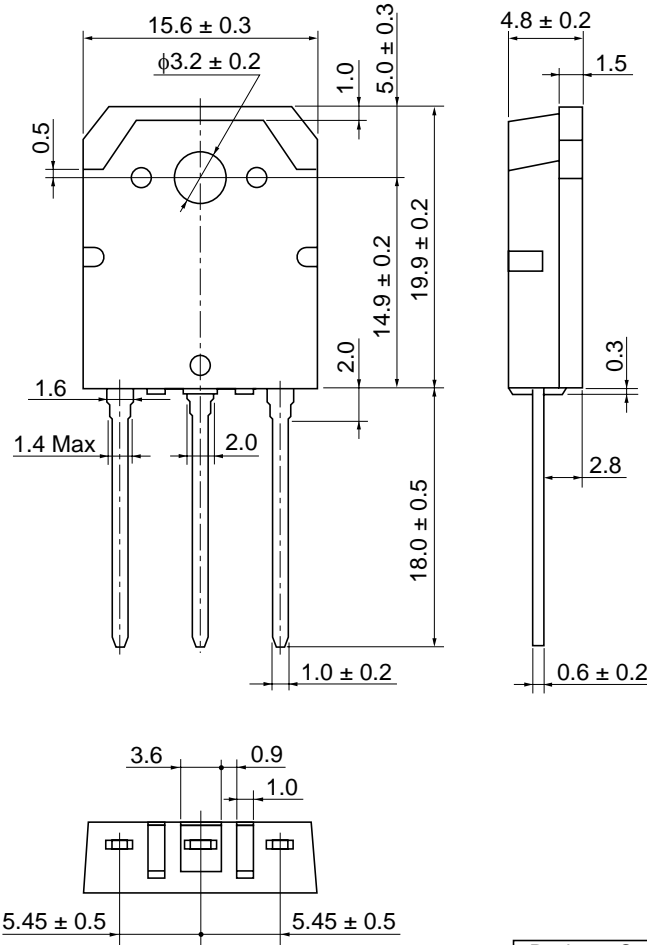


Waveform



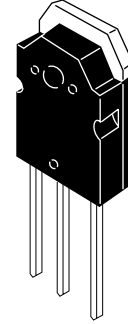


Package Dimensions



As of January, 2003

Unit: mm



Package Code	TO-3P
JEDEC	—
JEITA	Conforms
Mass (reference value)	5.0 g

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