

H5N3003P

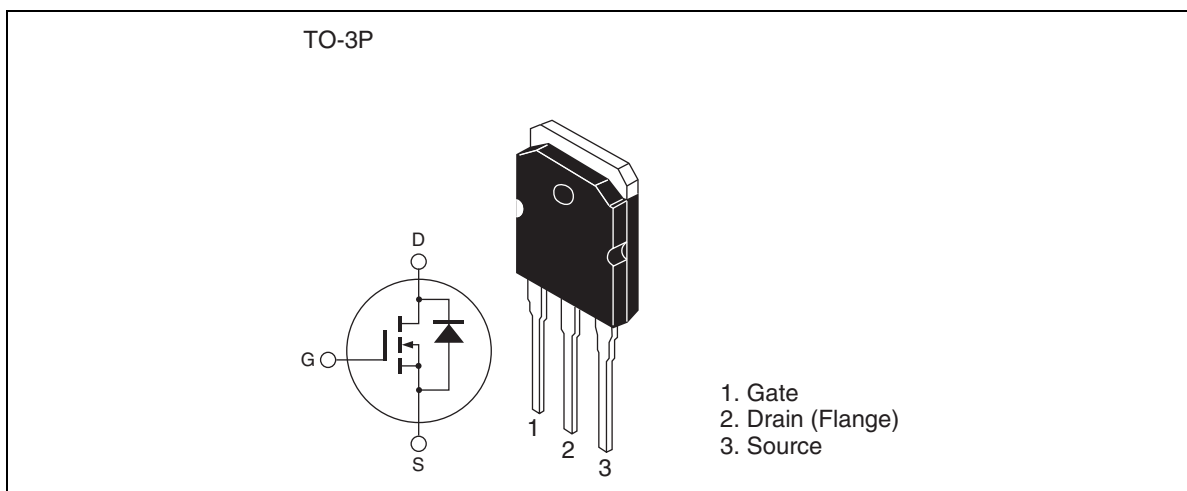
Silicon N Channel MOS FET
High Speed Power Switching

REJ03G0007-0200Z
(Previous ADE-208-1547A(Z))
Rev.2.00
Aug.01.2003

Features

- Low on-resistance
- Low leakage current
- High Speed Switching

Outline



Absolute Maximum Ratings

(Ta = 25°C)

Item	Symbol	Ratings	Unit
Drain to source voltage	V _{DSS}	300	V
Gate to source voltage	V _{GSS}	±30	V
Drain current	I _D	40	A
Drain peak current	I _D (pulse) ^{Note1}	160	A
Body-drain diode reverse drain current	I _{DR}	40	A
Body-drain diode reverse drain peak current	I _{DR} (pulse) ^{Note1}	160	A
Avalanche current	I _{AP} ^{Note3}	30	A
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 Tc = 25°C

3. T_{ch} ≤ 150°C

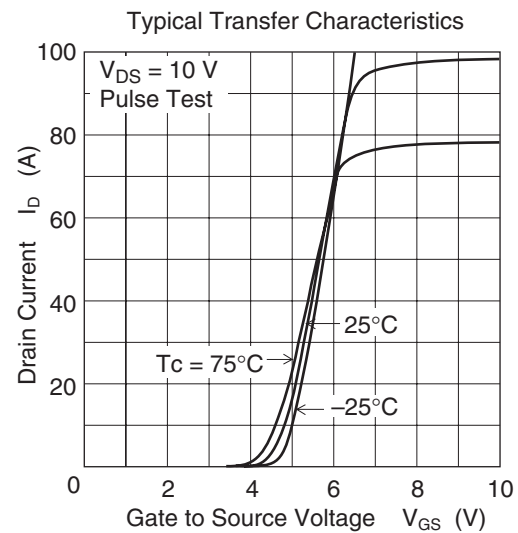
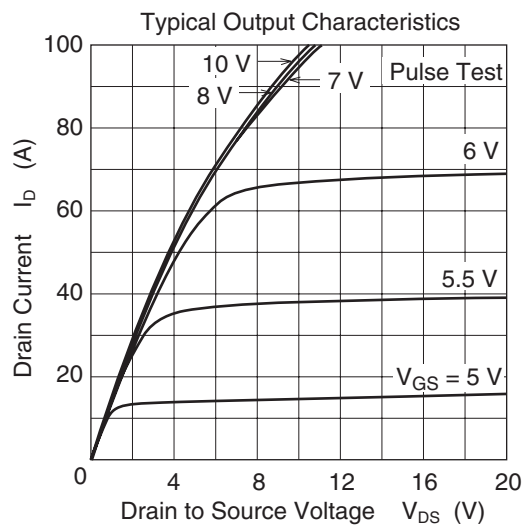
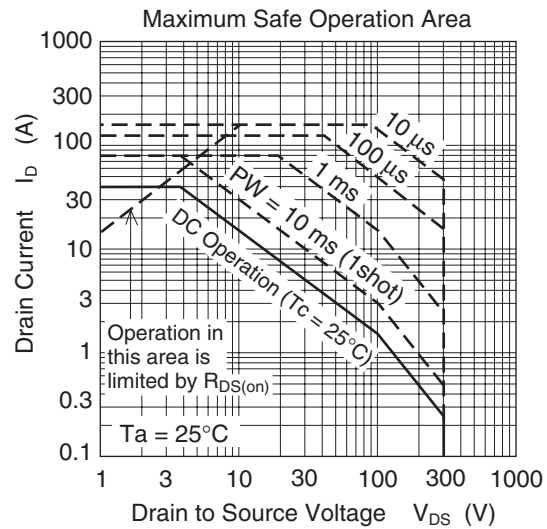
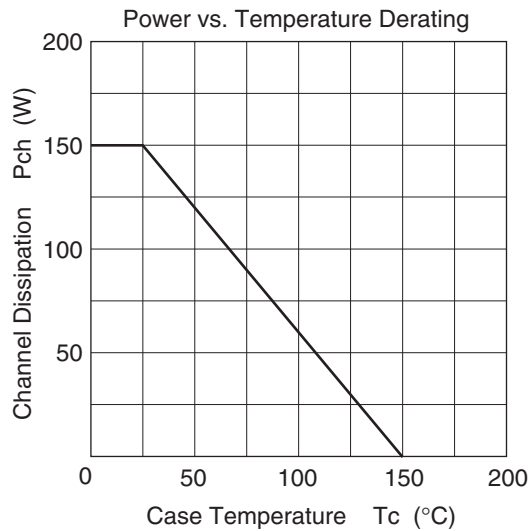
Electrical Characteristics

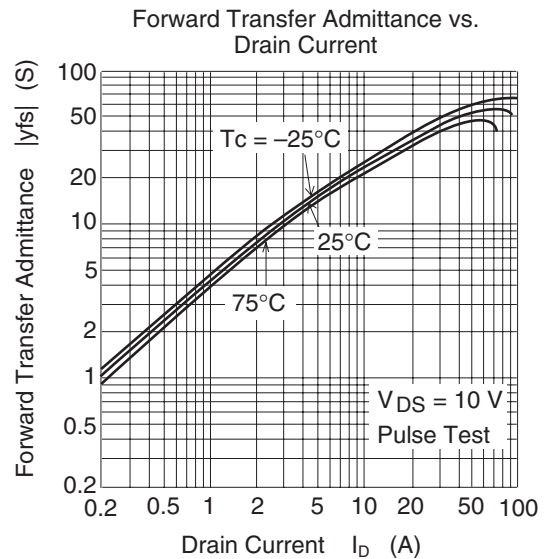
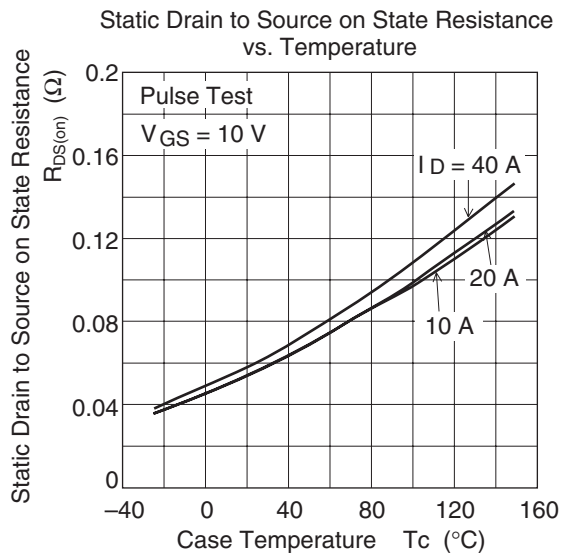
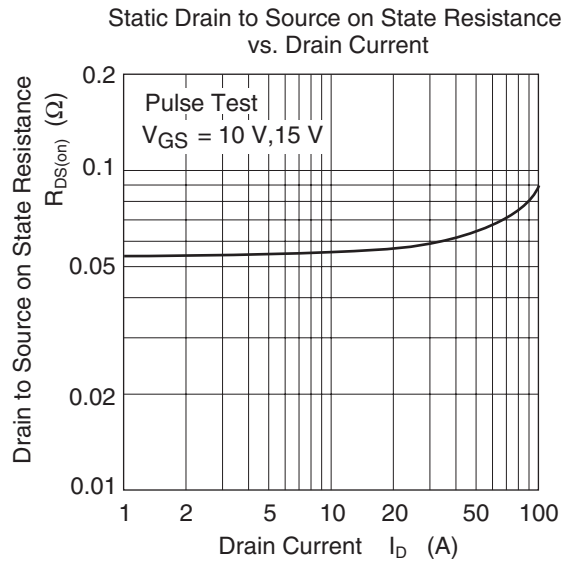
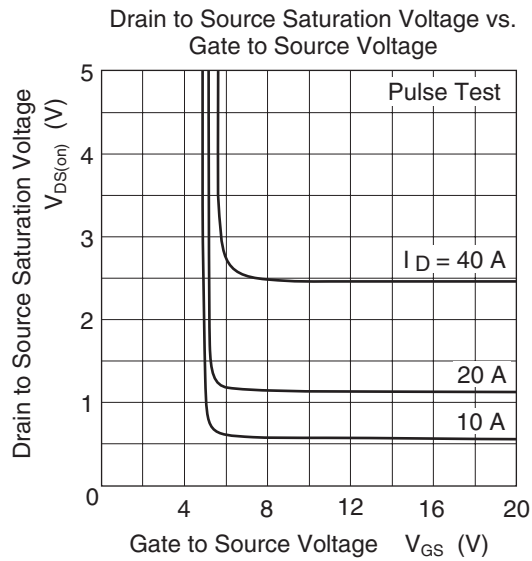
(Ta = 25°C)

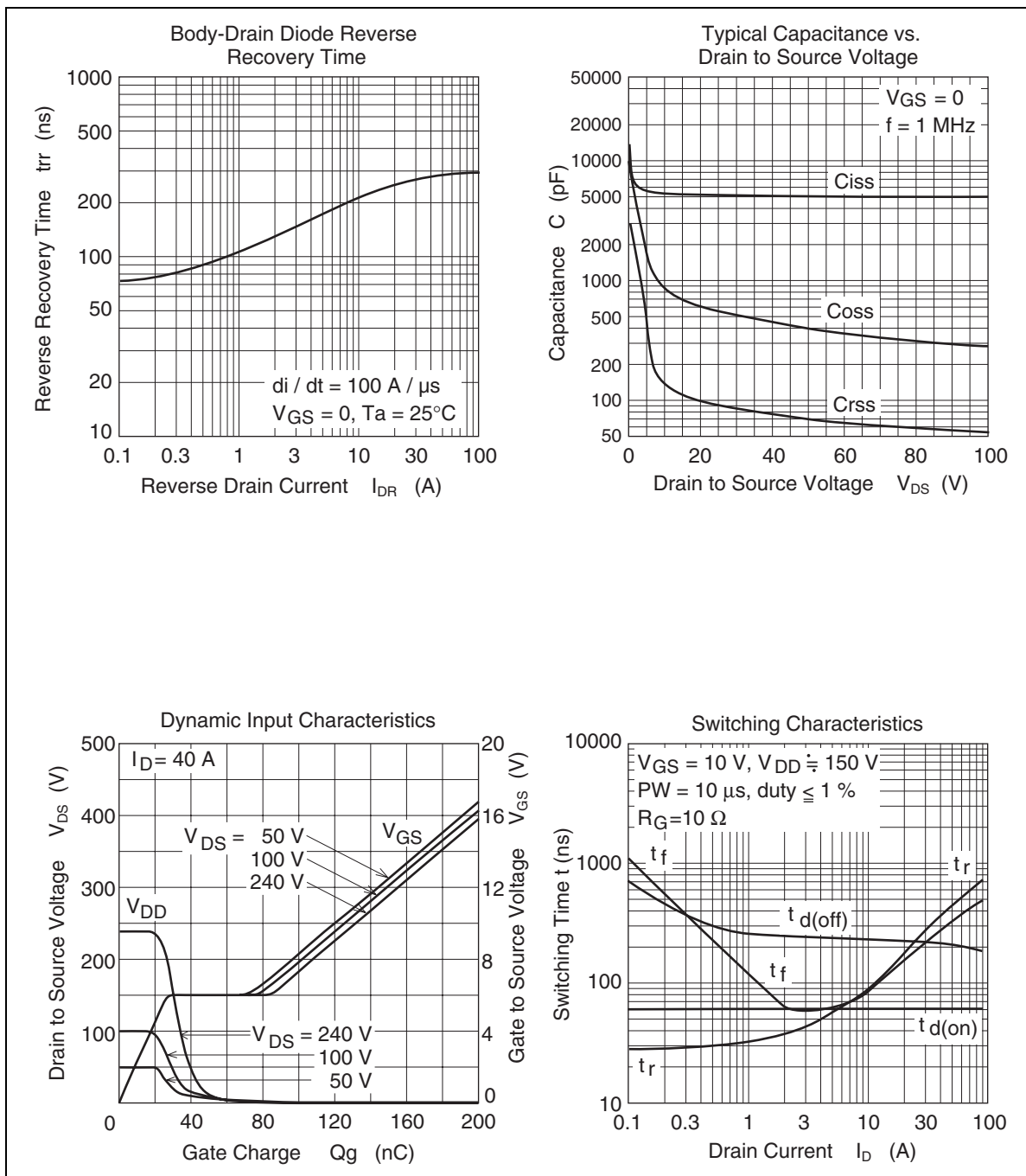
Item	Symbol	Min	Typ	Max	Unit	Test Conditions
Drain to source breakdown voltage	$V_{(BR)DSS}$	300	—	—	V	$I_D = 10\text{mA}$, $V_{GS} = 0$
Zero gate voltage drain current	I_{DSS}	—	—	1	μA	$V_{DS} = 300\text{V}$, $V_{GS} = 0$
Gate to source leak current	I_{GSS}	—	—	± 0.1	μA	$V_{GS} = \pm 30\text{V}$, $V_{DS} = 0$
Gate to source cutoff voltage	$V_{GS(off)}$	3.0	—	4.0	V	$V_{DS} = 10\text{V}$, $I_D = 1\text{mA}$
Forward transfer admittance	$ y_{fs} $	20	35	—	S	$I_D = 20\text{A}$, $V_{DS} = 10\text{V}$ ^{Note4}
Static drain to source on state resistance	$R_{DS(on)}$	—	0.058	0.069	Ω	$I_D = 20\text{A}$, $V_{GS} = 10\text{V}$ ^{Note4}
Input capacitance	C_{iss}	—	5150	—	pF	$V_{DS} = 25\text{V}$
Output capacitance	C_{oss}	—	560	—	pF	$V_{GS} = 0$
Reverse transfer capacitance	C_{rss}	—	90	—	pF	$f = 1\text{MHz}$
Turn-on delay time	$t_{d(on)}$	—	60	—	ns	$I_D = 20\text{A}$
Rise time	t_r	—	185	—	ns	$R_L = 7.5\Omega$
Turn-off delay time	$t_{d(off)}$	—	220	—	ns	$V_{GS} = 10\text{V}$
Fall time	t_f	—	150	—	ns	$R_g = 10\Omega$
Total gate charge	Q_g	—	130	—	nC	$V_{DD} = 240\text{V}$
Gate to source charge	Q_{gs}	—	25	—	nC	$V_{GS} = 10\text{V}$
Gate to drain charge	Q_{gd}	—	60	—	nC	$I_D = 40\text{A}$
Body-drain diode forward voltage	V_{DF}	—	1.0	1.5	V	$I_F = 40\text{A}$, $V_{GS} = 0$
Body-drain diode reverse recovery time	t_{rr}	—	280	—	ns	$I_F = 40\text{A}$, $V_{GS} = 0$ $di_F/dt = 100\text{A}/\mu\text{s}$
Body-drain diode reverse recovery charge	Q_{rr}	—	2.5	—	μC	

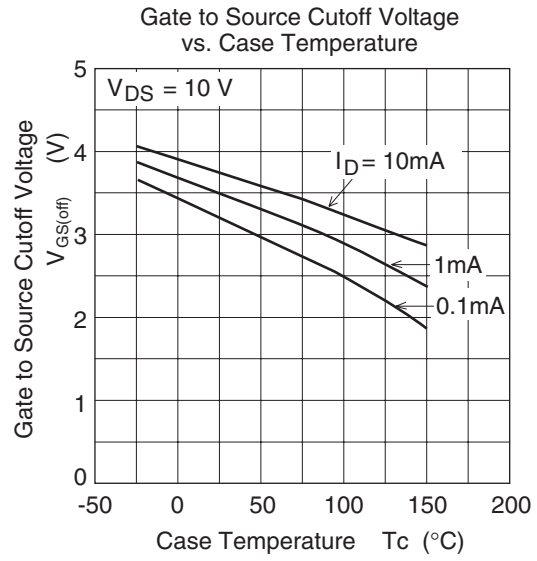
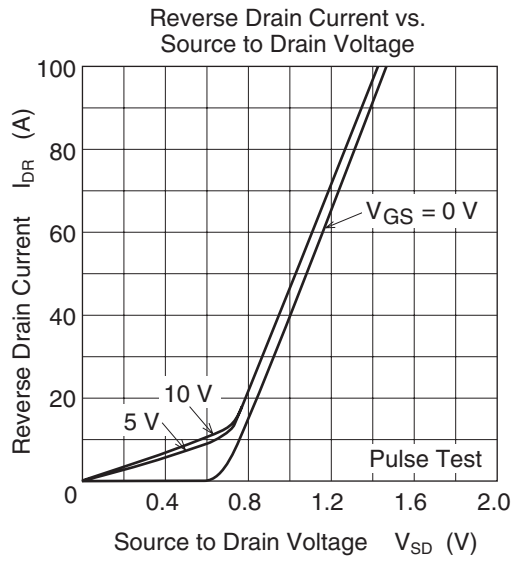
Notes: 4. Pulse test

Main Characteristics

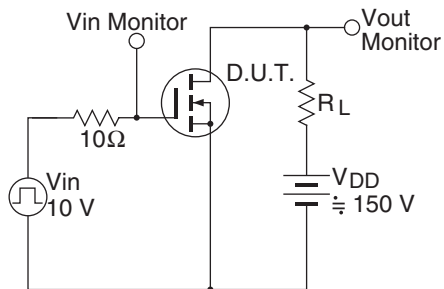




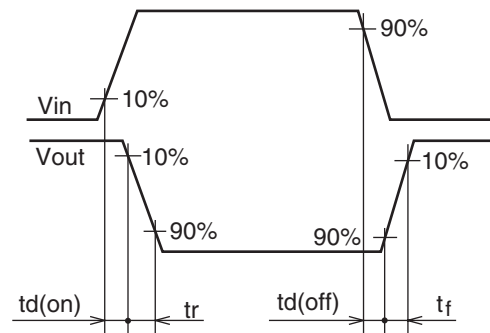


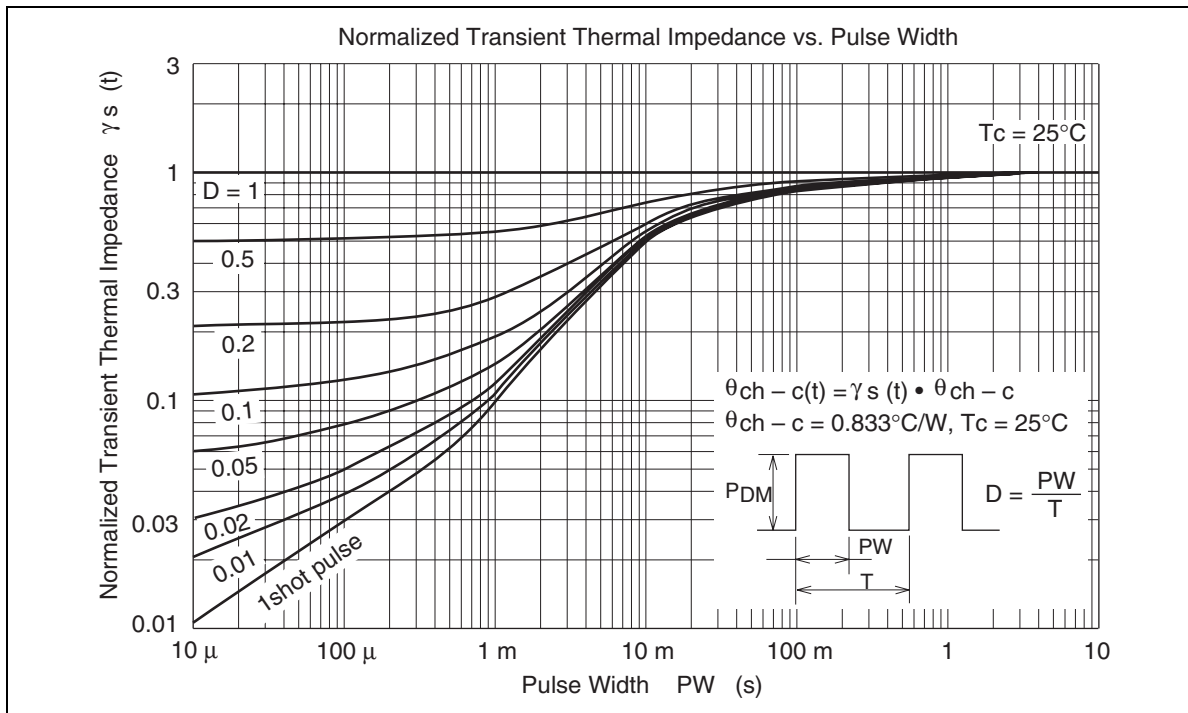


Switching Time Test Circuit

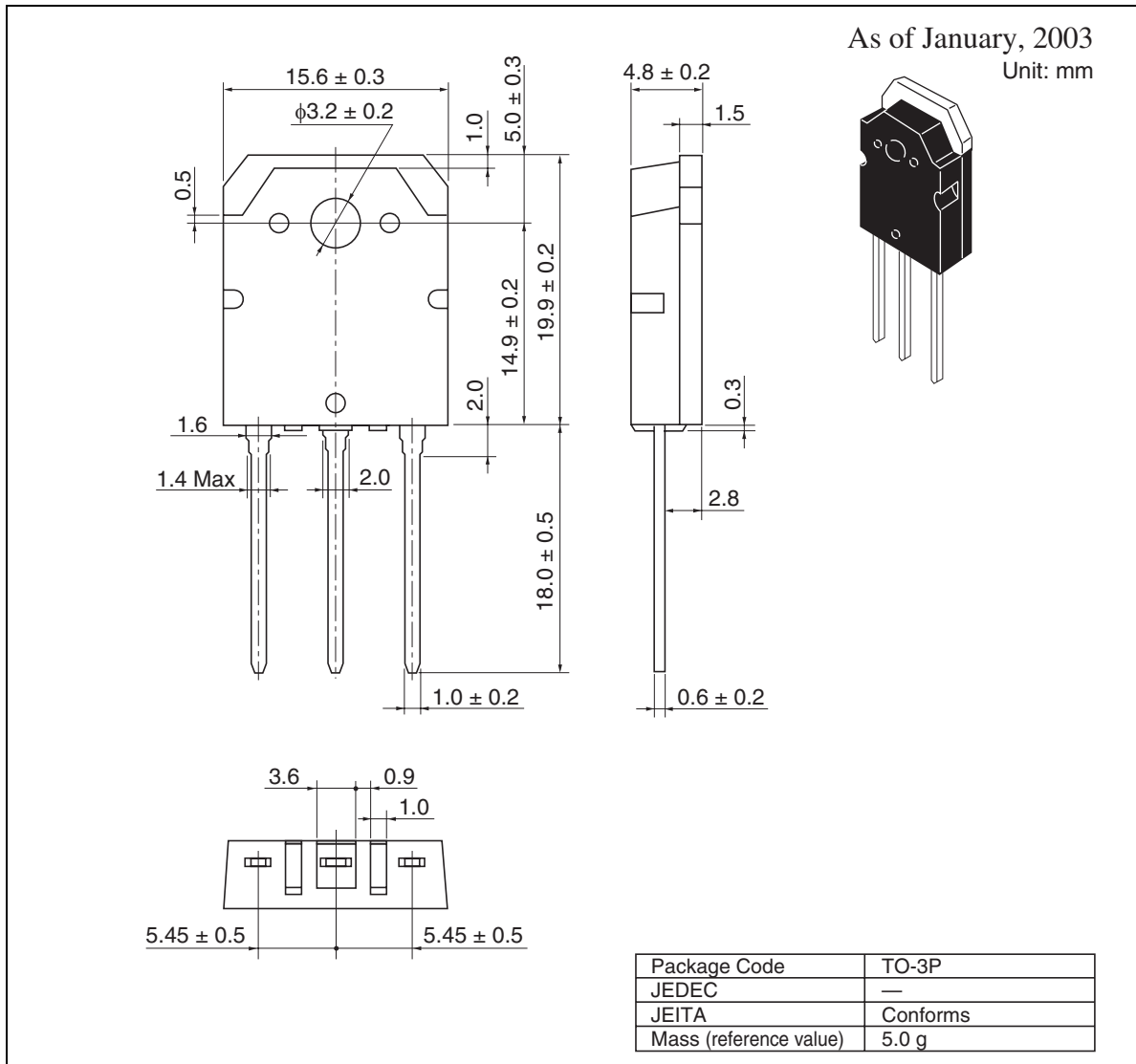


Waveform





Package Dimensions



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