

H7N0608AB

Silicon N Channel MOS FET
High Speed Power Switching

REJ03G0143-0100Z

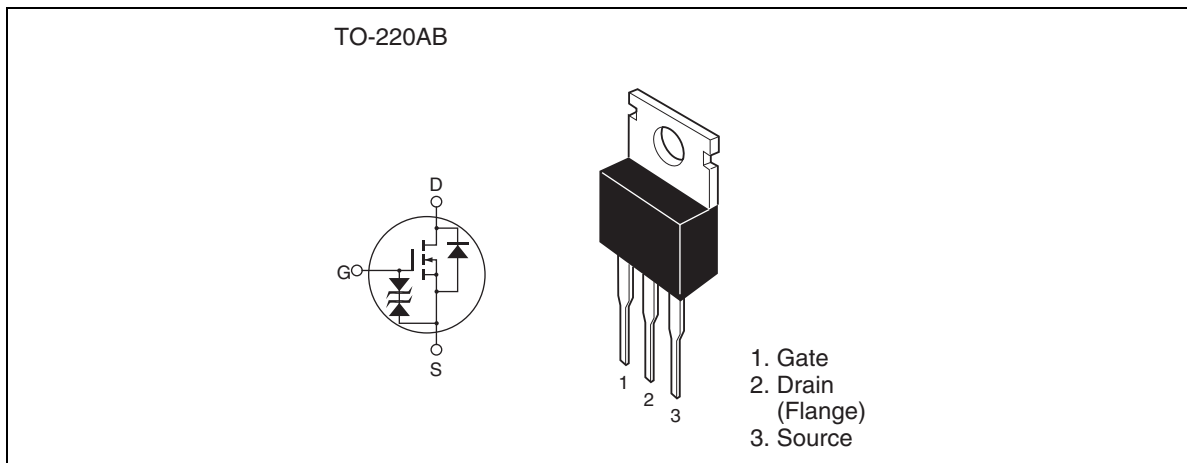
Rev.1.00

Oct.30.2003

Features

- Low on-resistance
 $R_{DS(on)} = 6.0 \text{ m}\Omega$ typ.
- Low drive current
- Available for 4.5 V gate drive

Outline



Absolute Maximum Ratings

(Ta = 25°C)

Item	Symbol	Ratings	Unit
Drain to source voltage	V _{DSS}	60	V
Gate to source voltage	V _{GSS}	±20	V
Drain current	I _D	70	A
Drain peak current	I _D (pulse) ^{Note1}	280	A
Body-drain diode reverse drain current	I _{DR}	70	A
Avalanche current	I _{AP} ^{Note3}	40	A
Avalanche energy	E _{AR} ^{Note3}	137	mJ
Channel dissipation	P _{ch} ^{Note2}	80	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. Value at Tch = 25°C, Rg ≥ 50 Ω

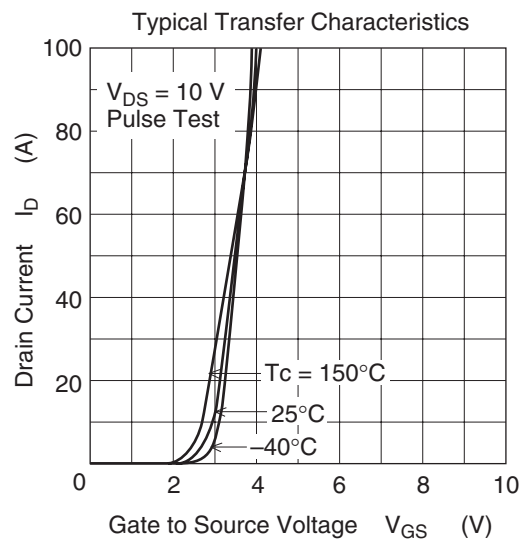
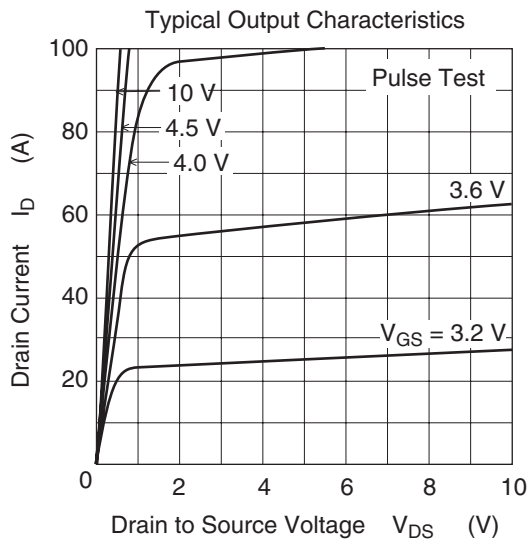
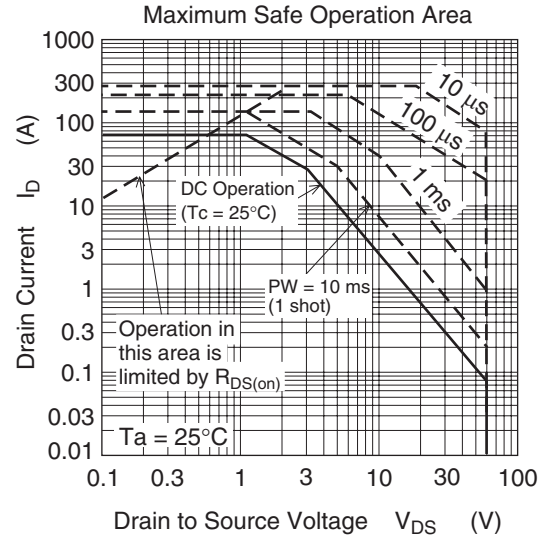
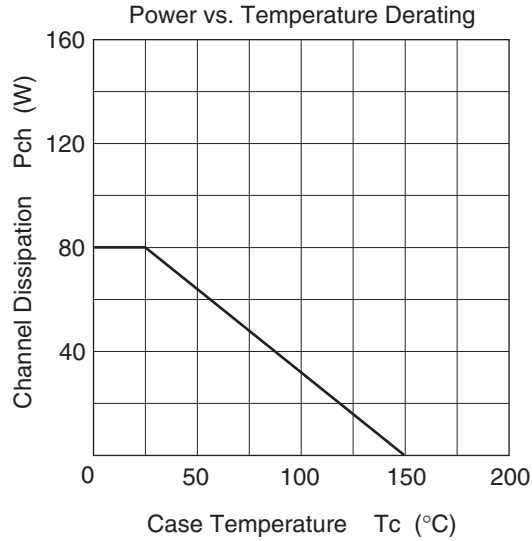
Electrical Characteristics

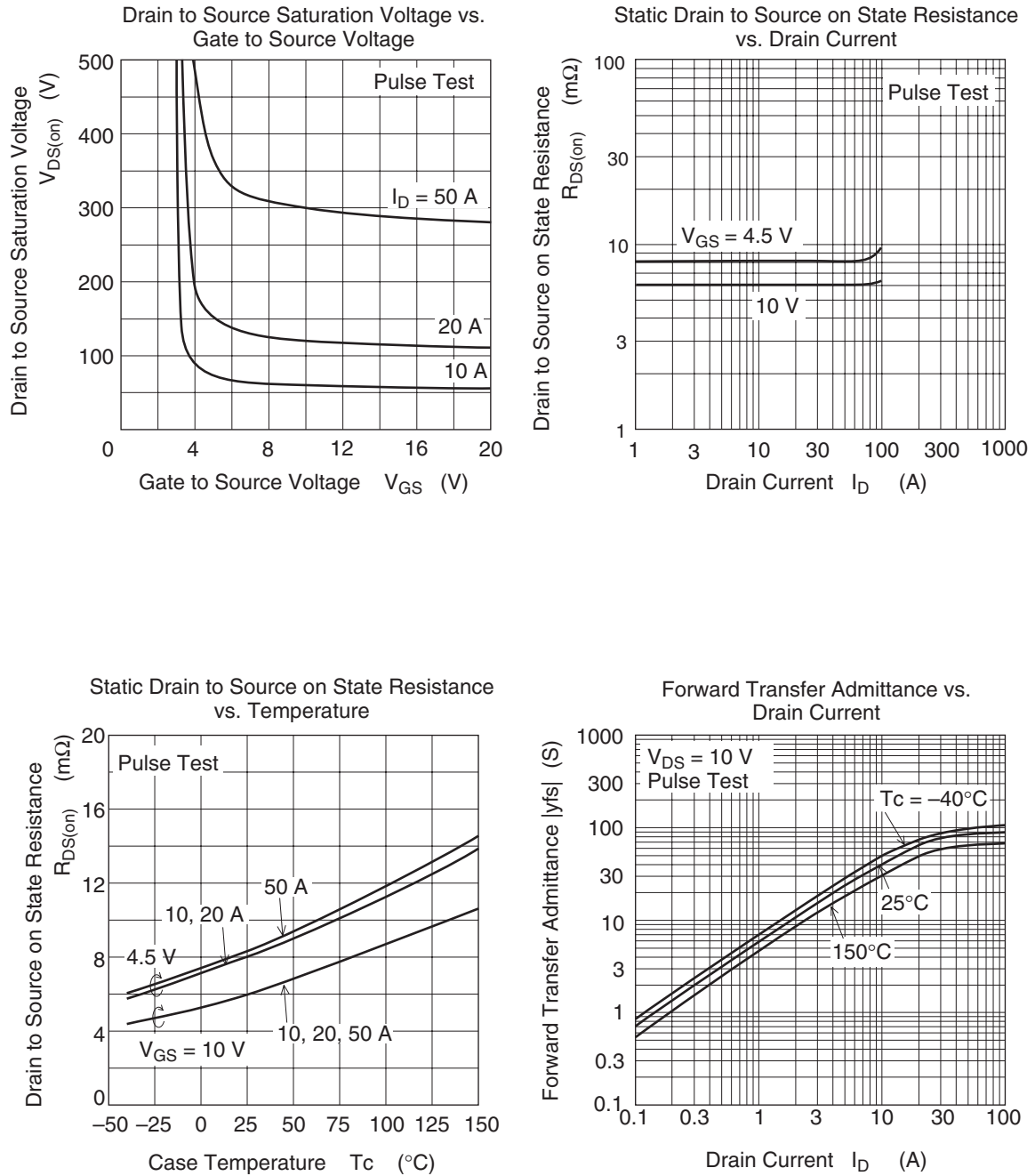
(T_a = 25°C)

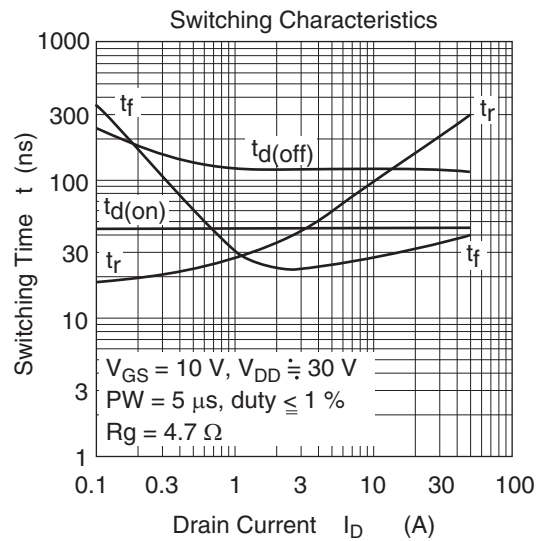
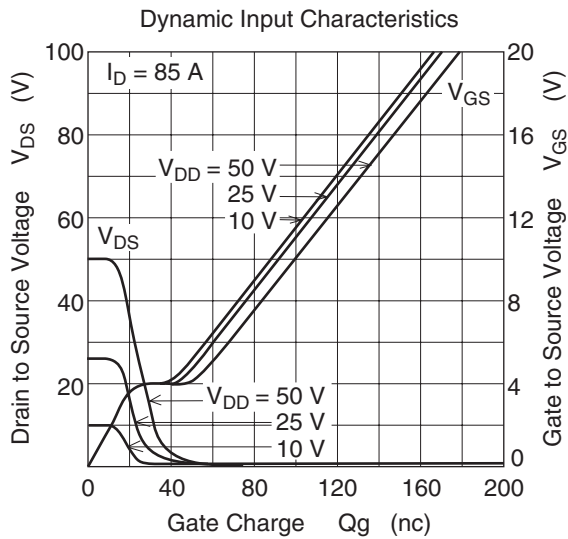
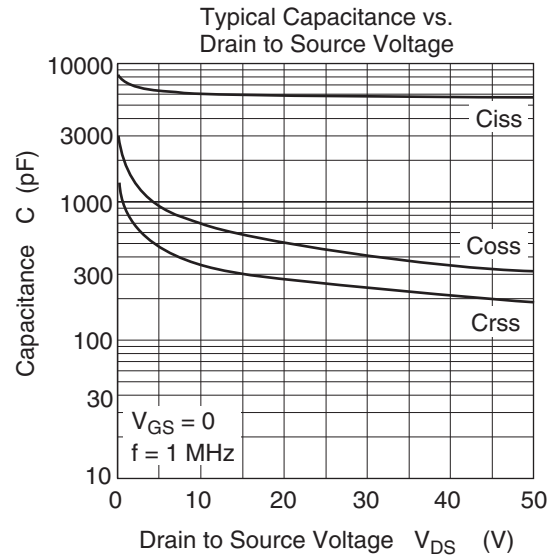
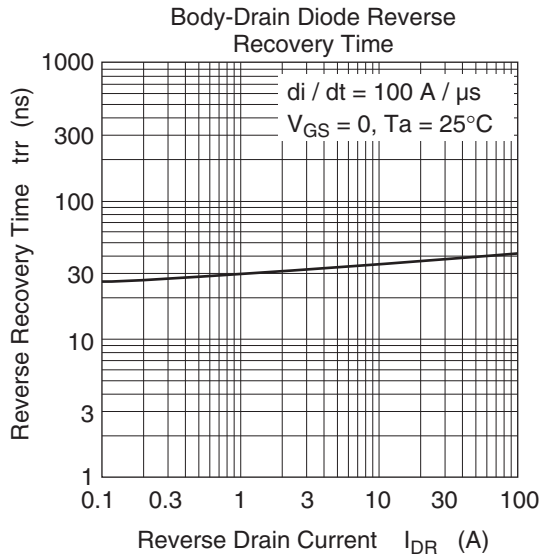
Item	Symbol	Min	Typ	Max	Unit	Test Conditions
Drain to source breakdown voltage	V _{(BR)DSS}	60	—	—	V	I _D = 10 mA, V _{GS} = 0
Gate to source breakdown Voltage	V _{(BR)GSS}	±20	—	—	V	I _G = ±100 μA, V _{DS} = 0
Gate to source leak current	I _{GSS}	—	—	±10	μA	V _{GS} = ±16 V, V _{DS} = 0
Zero gate voltage drain current	I _{DSS}	—	—	10	μA	V _{DS} = 60 V, V _{GS} = 0
Gate to source cutoff voltage	V _{GS(off)}	1.5	—	2.5	V	I _D = 1 mA, V _{DS} = 10 V ^{Note1}
Static drain to source on state resistance	R _{DS(on)}	—	6.0	8.0	mΩ	I _D = 35 A, V _{GS} = 10 V ^{Note1}
		—	8.0	12	mΩ	I _D = 35 A, V _{GS} = 4.5 V ^{Note1}
Forward transfer admittance	y _{fs}	45	75	—	S	I _D = 35 A, V _{GS} = 10 V ^{Note1}
Input capacitance	C _{iss}	—	6200	—	pF	V _{DS} = 10 V
Output capacitance	C _{oss}	—	680	—	pF	V _{GS} = 0
Reverse transfer capacitance	C _{rss}	—	350	—	pF	f = 1 MHz
Total gate charge	Q _g	—	100	—	nC	V _{DD} = 25 V
Gate to source charge	Q _{gs}	—	20	—	nC	V _{GS} = 10 V
Gate to drain charge	Q _{gd}	—	20	—	nC	I _D = 70 A
Turn-on delay time	t _{d(on)}	—	45	—	ns	V _{GS} = 10 V, I _D = 35 A
Rise time	t _r	—	220	—	ns	R _L = 0.86 Ω
Turn-off delay time	t _{d(off)}	—	125	—	ns	R _g = 4.7 Ω
Fall time	t _f	—	35	—	ns	
Body-drain diode forward voltage	V _{DF}	—	0.94	—	V	I _F = 70 A, V _{GS} = 0
Body-drain diode reverse recovery time	t _{rr}	—	40	—	ns	I _F = 70 A, V _{GS} = 0 diF/dt = 100 A/μs

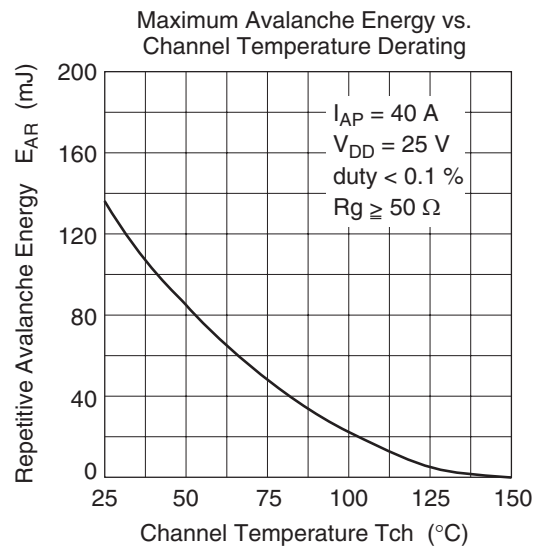
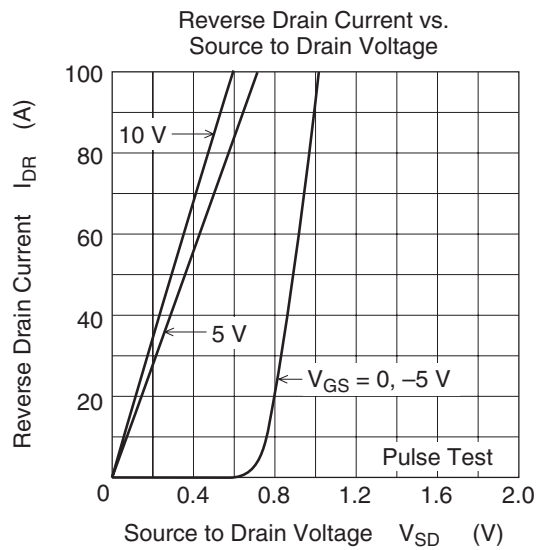
Notes: 1. Pulse test

Main Characteristics

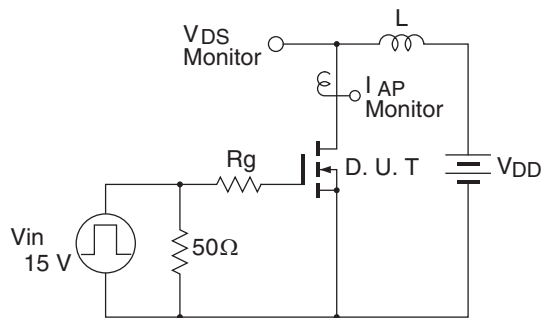






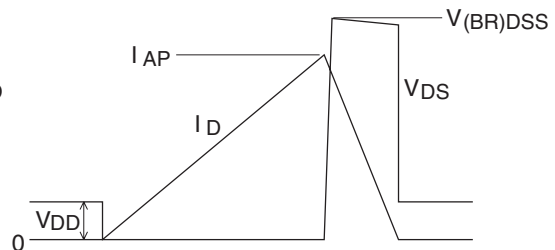


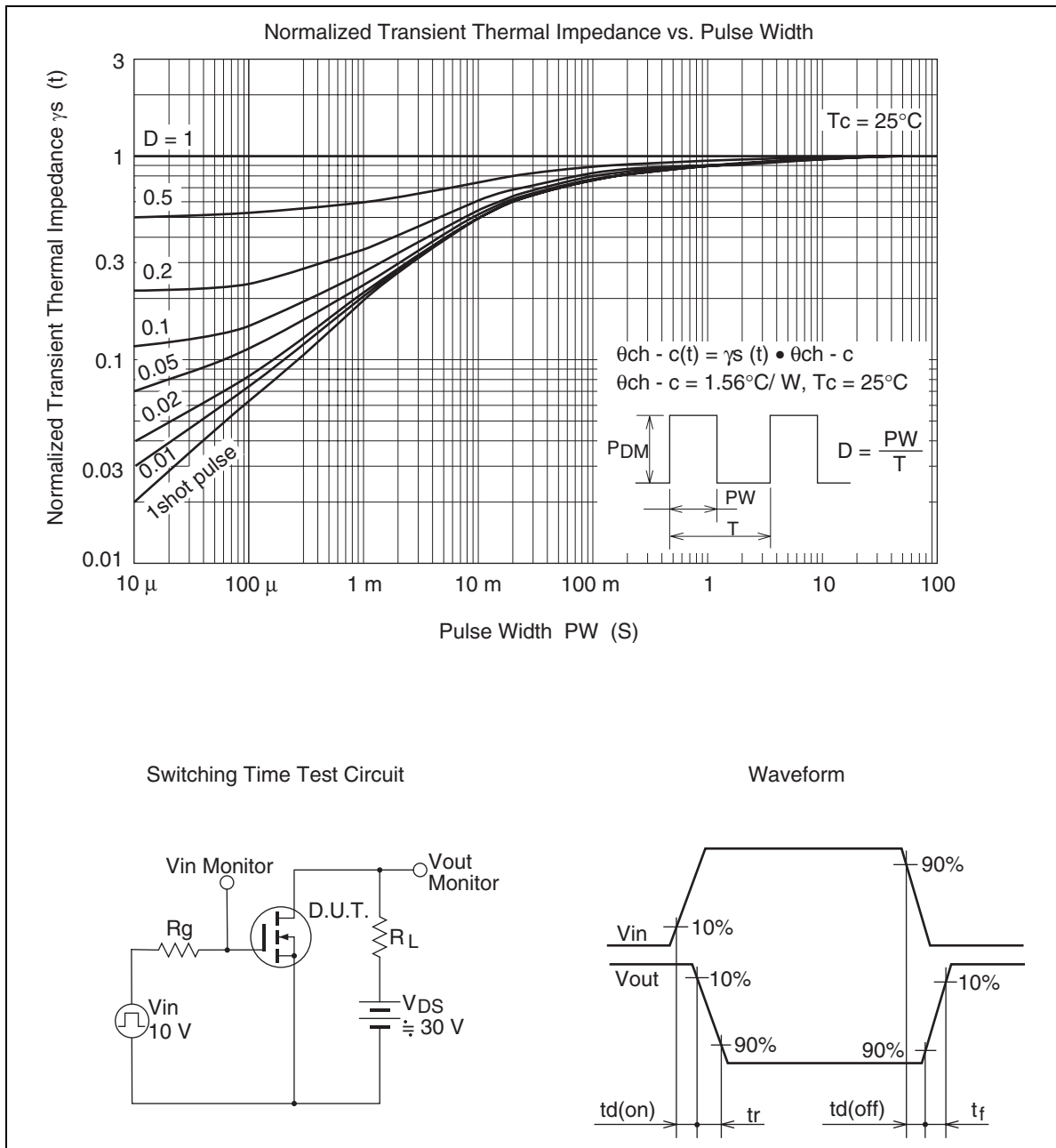
Avalanche Test Circuit



Avalanche Waveform

$$E_{AR} = \frac{1}{2} \cdot L \cdot I_{AP}^2 \cdot \frac{V_{DSS}}{V_{DSS} - V_{DD}}$$

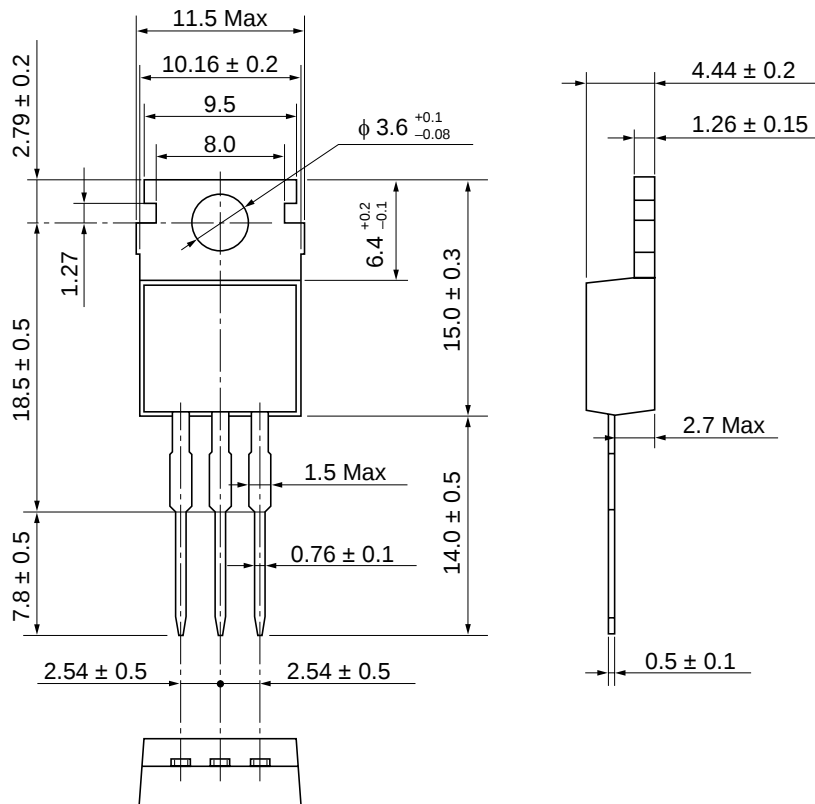




Package Dimensions

As of January, 2003

Unit: mm



Package Code	TO-220AB
JEDEC	Conforms
JEITA	Conforms
Mass (reference value)	1.8 g

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