
2SJ496

Silicon P-Channel MOS FET
High Speed Power Switching

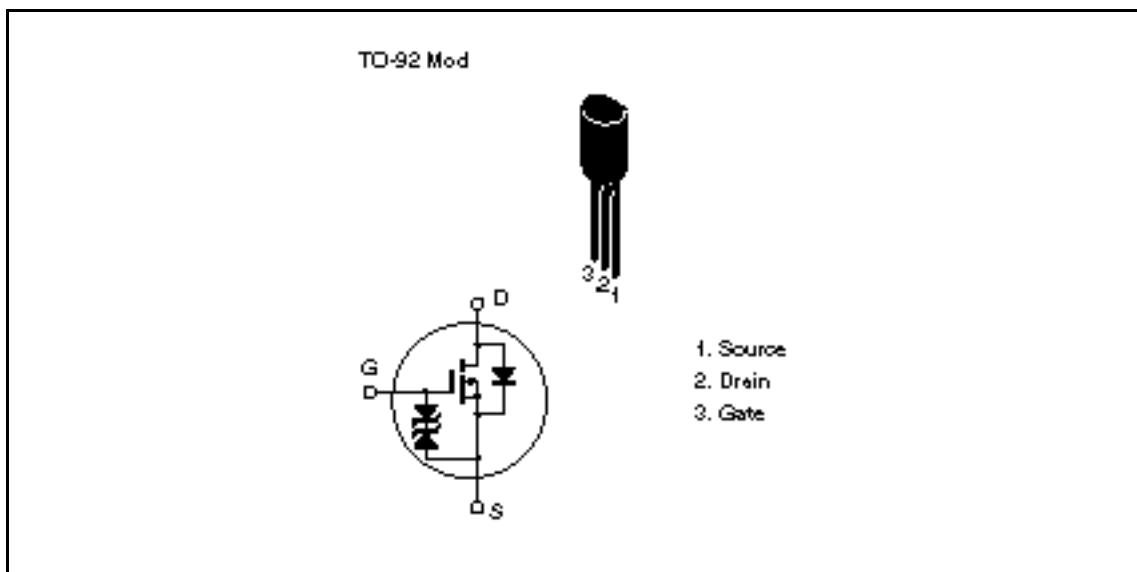
HITACHI

ADE-208-482
1st. Edition

Features

- Σ Low on-resistance
 $R_{DS(on)} = 0.12 \Omega$ typ. (at $V_{GS} = -10 \text{ V}$, $I_D = -2.5 \text{ A}$)
- Σ 4V gate drive devices.
- Σ Large current capacitance
 $I_D = -5 \text{ A}$

Outline



2SJ496

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	−5	A
Drain peak current	$I_{D(pulse)}^{*1}$	−20	A
Body to drain diode reverse drain current	I_{DR}	−5	A
Avalanche current	I_{AP}^{*3}	−5	A
Avalanche energy	E_{AR}^{*3}	2.14	mJ
Channel dissipation	P_{ch}^{*2}	0.9	W
Channel temperature	Tch	150	°C
Storage temperature	Tstg	−55 to +150	°C

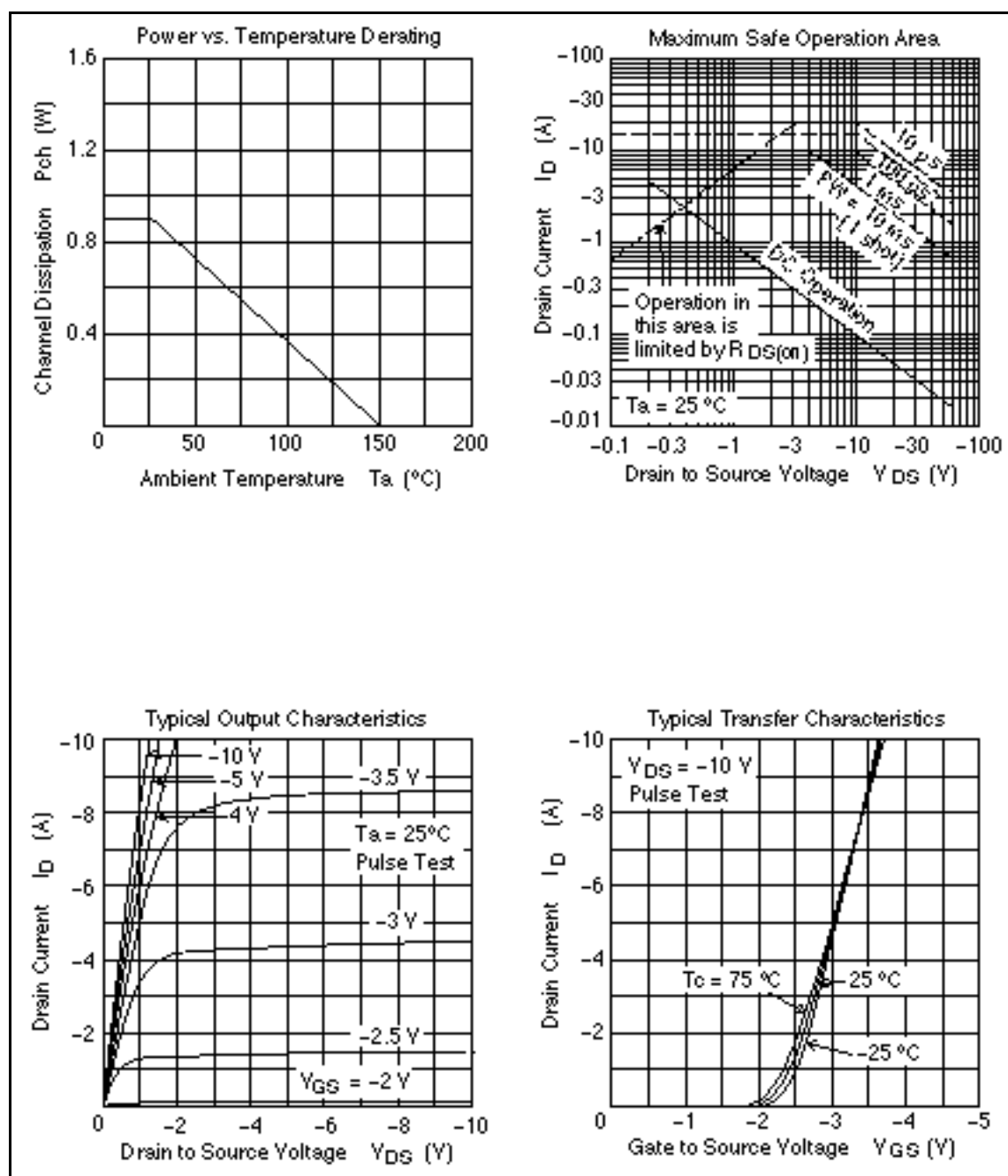
Notes: 1. PW ≤ 10ms, duty cycle ≤ 1 %
2. Value at Ta = 25°C
3. Value at Ta = 25°C, Rg ≥ 50 W

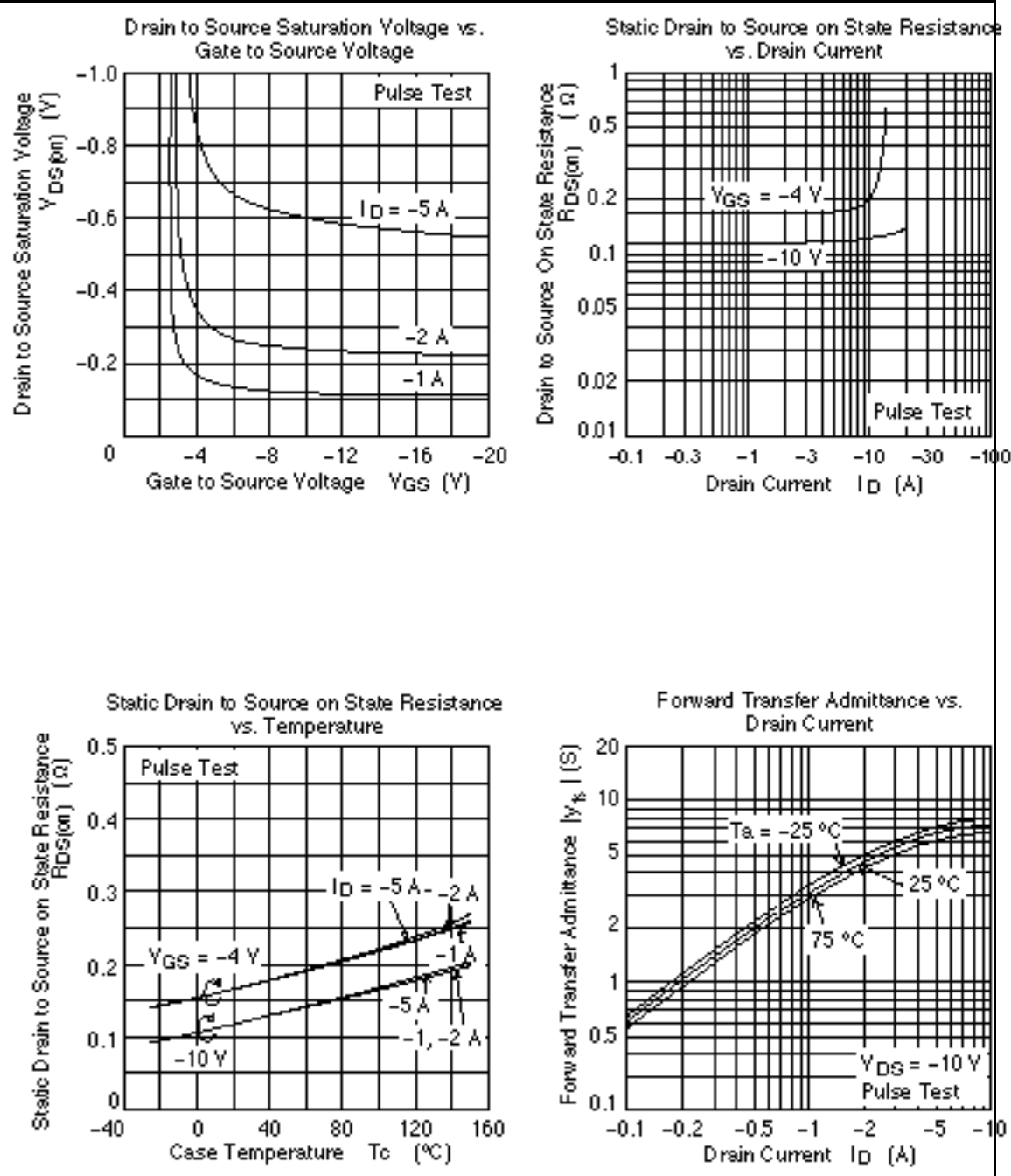
Electrical Characteristics (Ta = 25°C)

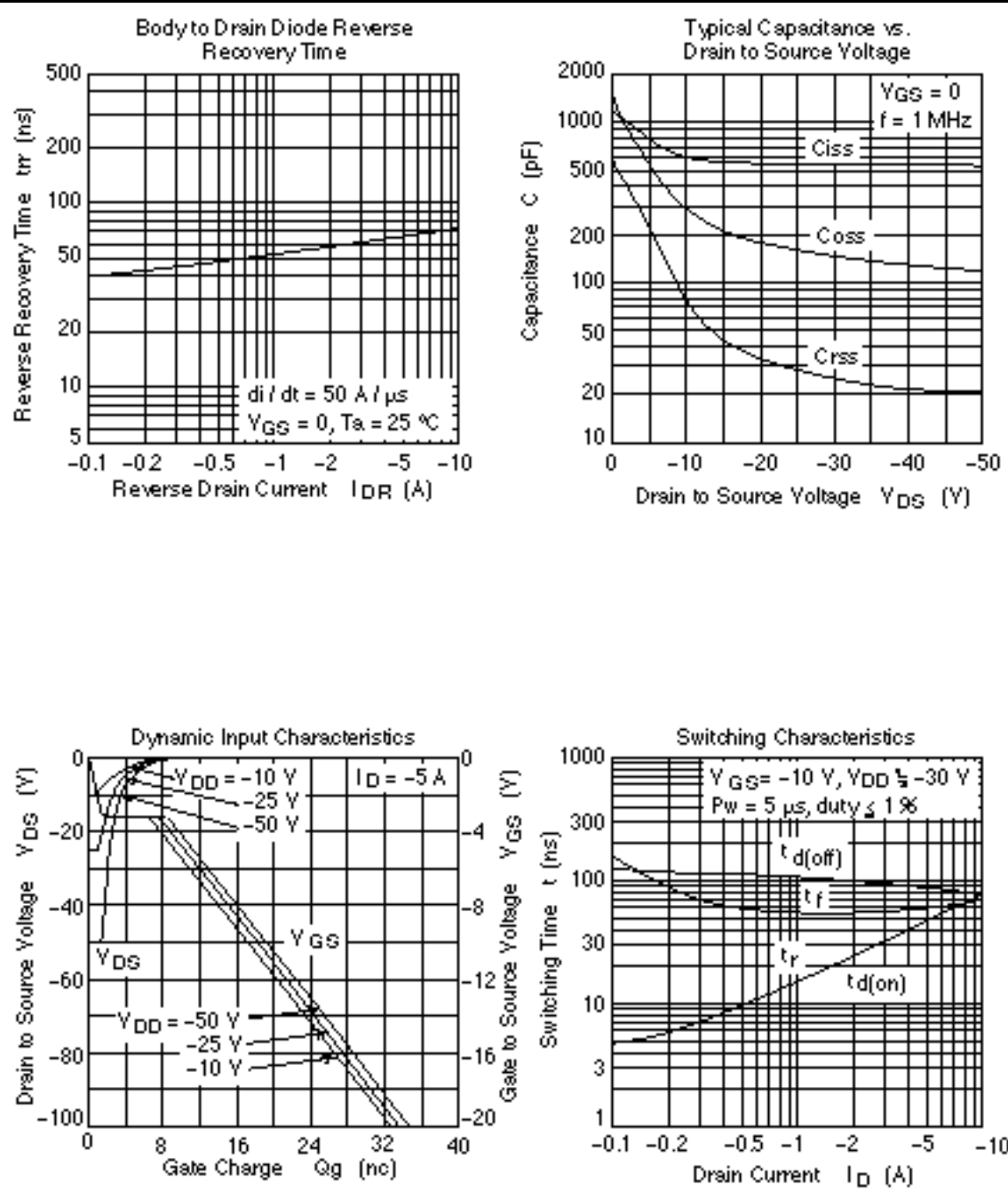
Item	Symbol	Min	Typ	Max	Unit	Test Conditions
Drain to source breakdown voltage	$V_{(BR)DSS}$	-60	—	—	V	$I_D = -10\text{mA}$, $V_{GS} = 0$
Gate to source breakdown voltage	$V_{(BR)GSS}$	±20	—	—	V	$I_G = \pm 100\text{mA}$, $V_{DS} = 0$
Zero gate voltage drain current	I_{DSS}	—	—	-10	mA	$V_{DS} = -60\text{V}$, $V_{GS} = 0$
Gate to source leak current	I_{GSS}	—	—	±10	mA	$V_{GS} = \pm 16\text{V}$, $V_{DS} = 0$
Gate to source cutoff voltage	$V_{GS(off)}$	-1.0	—	-2.0	V	$I_D = -1\text{mA}$, $V_{DS} = -10\text{V}$
Static drain to source on state resistance	$R_{DS(on)}$	—	0.12	0.16	W	$I_D = -2.5\text{A}$ $V_{GS} = -10\text{V}^{*1}$
	$R_{DS(on)}$	—	0.17	0.24	W	$I_D = -2.5\text{A}$ $V_{GS} = -4\text{V}^{*1}$
Forward transfer admittance	$ y_{fs} $	3	5	—	S	$I_D = 2.5\text{A}$, $V_{DS} = 10\text{V}^{*1}$
Input capacitance	C_{iss}	—	600	—	pF	$V_{DS} = -10\text{V}$
Output capacitance	C_{oss}	—	290	—	pF	$V_{GS} = 0$
Reverse transfer capacitance	C_{rss}	—	80	—	pF	$f = 1\text{MHz}$
Turn-on delay time	$t_{d(on)}$	—	10	—	ns	$V_{GS} = -10\text{V}$, $I_D = -2.5\text{A}$
Rise time	t_r	—	25	—	ns	$R_L = 12\text{W}$
Turn-off delay time	$t_{d(off)}$	—	95	—	ns	
Fall time	t_f	—	55	—	ns	
Body to drain diode forward voltage	V_{DF}	—	-1.0	—	V	$I_D = -5\text{A}$, $V_{GS} = 0$
Body to drain diode reverse recovery time	t_{rr}	—	65	—	ns	$I_F = -5\text{A}$, $V_{GS} = 0$ $di_F/dt = 50\text{A}/\mu\text{s}$

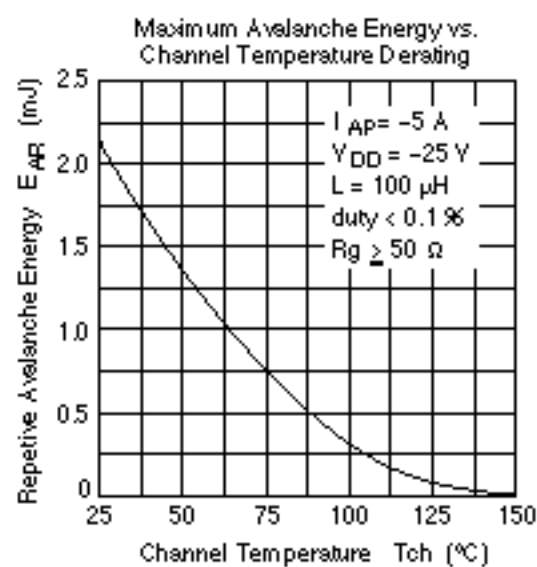
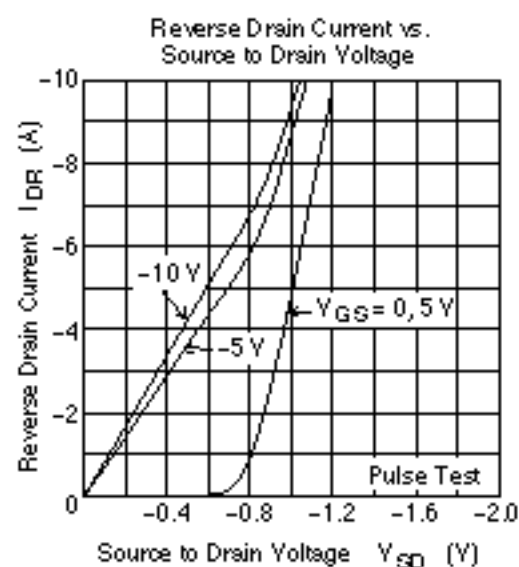
Note: 1. Pulse test

Main Characteristics

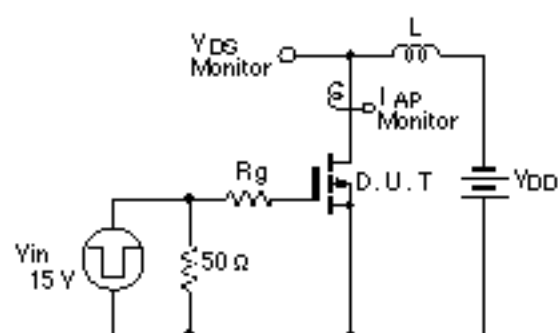






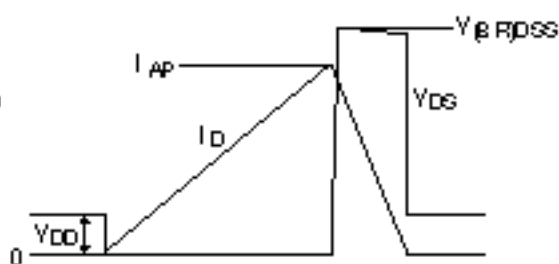


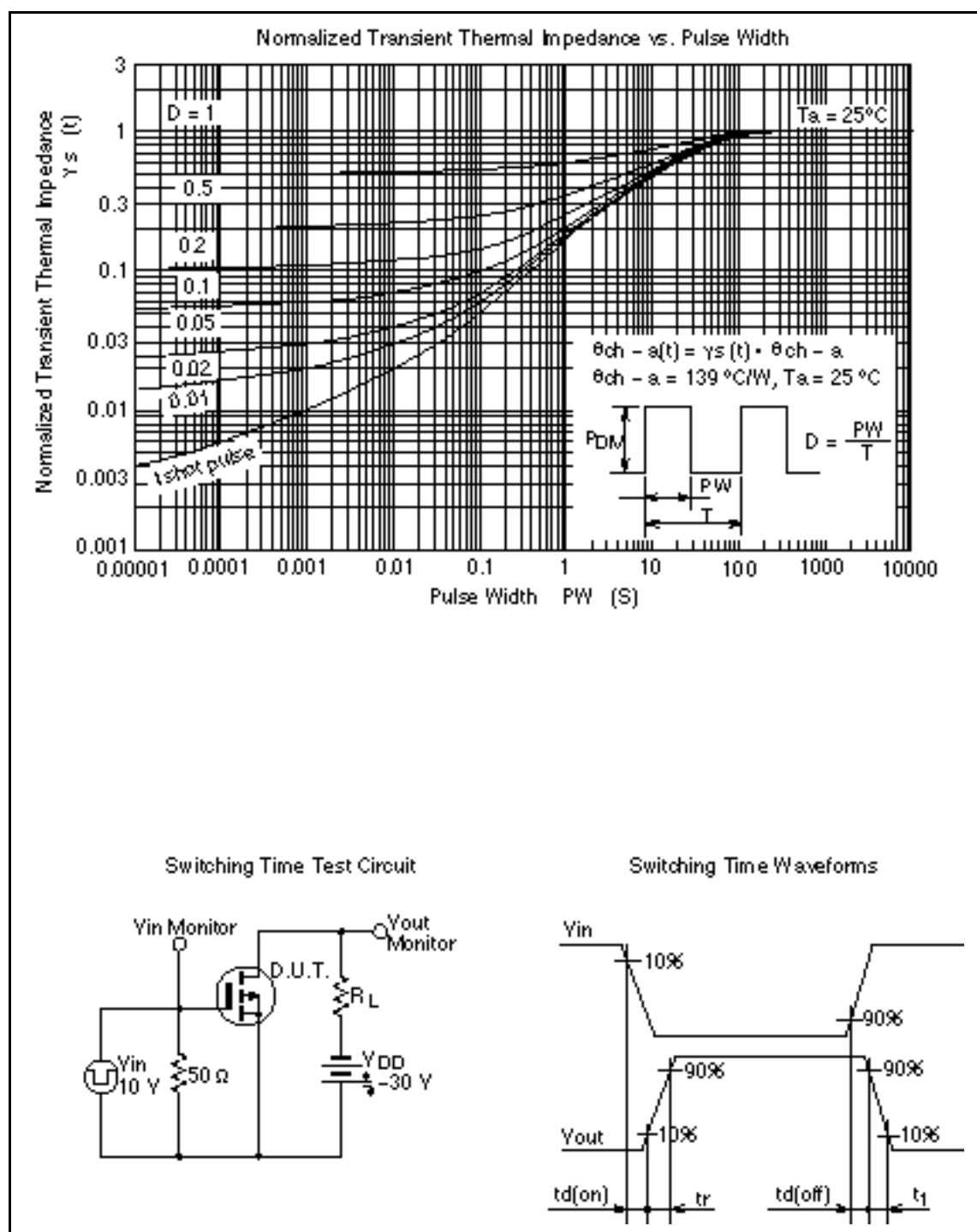
Avalanche Test Circuit



Avalanche Waveform

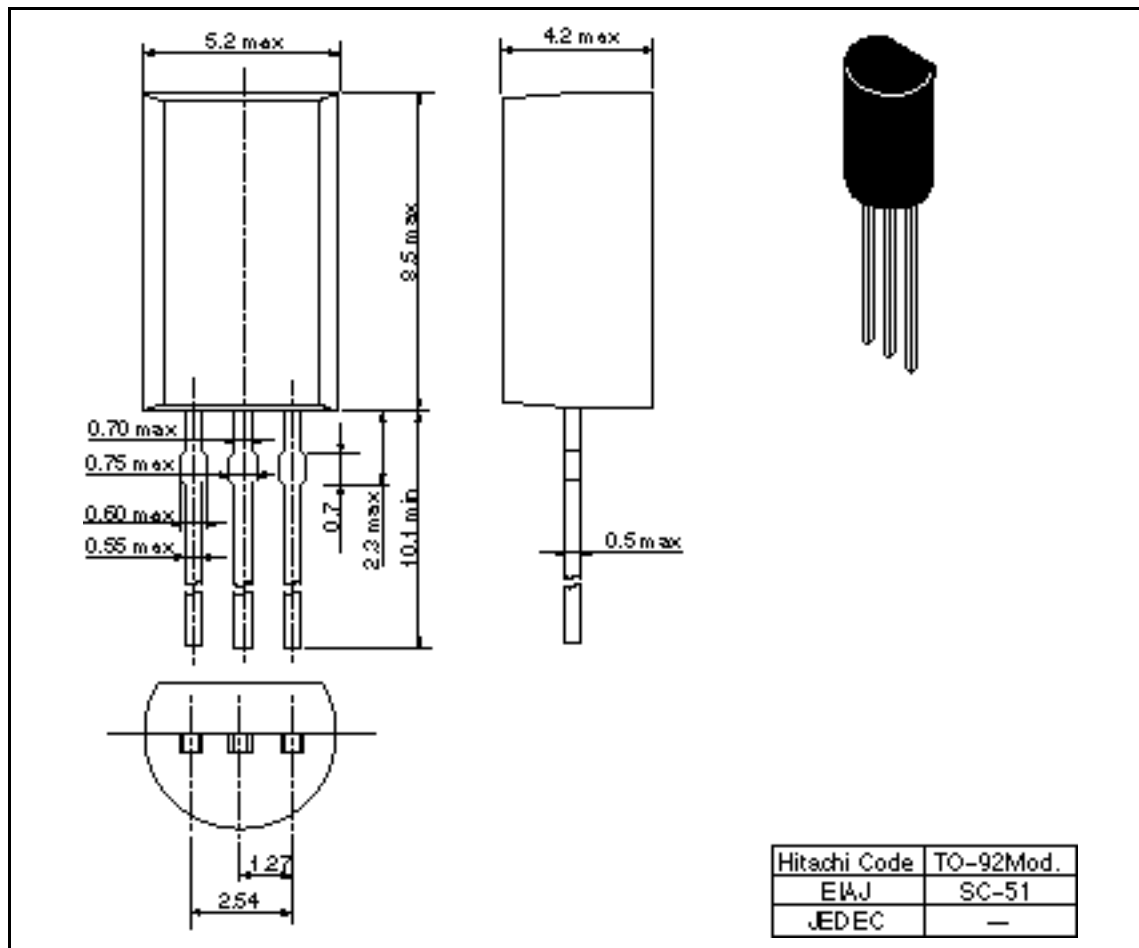
$$E_{AR} = \frac{1}{2} \cdot L \cdot I_{AP}^2 \cdot \frac{V_{DSS}}{V_{DSS} - V_{DD}}$$





Package Dimensions

Unit: mm



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