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# 2SK2725

Silicon N Channel MOS FET  
High Speed Power Switching

## HITACHI

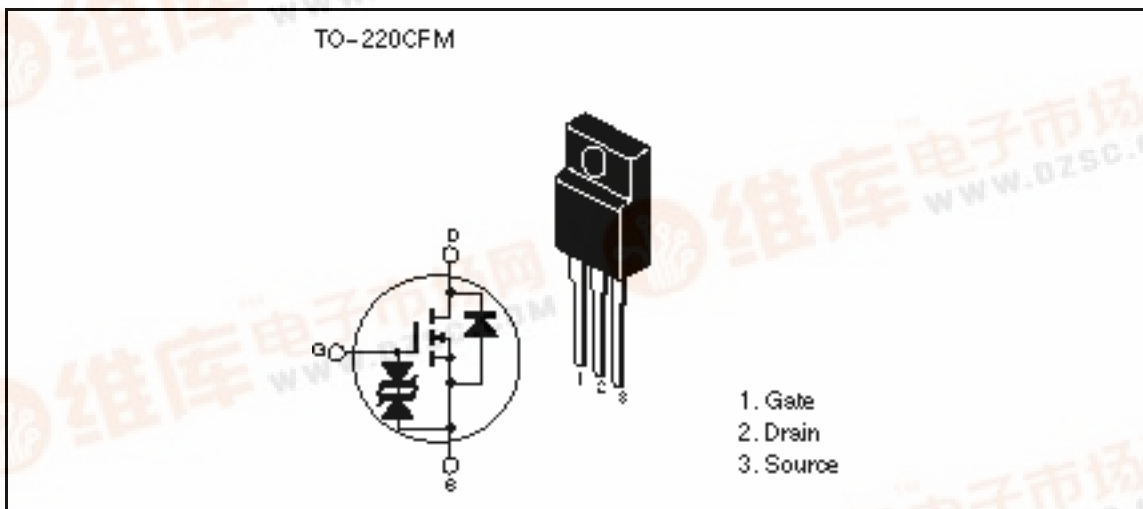
ADE-208-452 B  
3rd. Edition

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### Features

- Low on-resistance
- High speed switching
- Low drive current
- No secondary breakdown
- Avalanche ratings

### Outline



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## 2SK2725

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### Absolute Maximum Ratings (Ta = 25°C)

Item	Symbol	Ratings	Unit
Drain to source voltage	$V_{DSS}$	500	V
Gate to source voltage	$V_{GSS}$	±30	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	$E_{AR}^{*3}$	1.38	mJ
Channel dissipation	$Pch^{*2}$	30	W
Channel temperature	Tch	150	°C
Storage temperature	Tstg	-55 to +150	°C

- Notes: 1. PW = 10µs, duty cycle = 1 %  
2. Value at Tc = 25°C  
3. Value at Tch = 25°C, Rg = 50 Ω, L = 100 µH

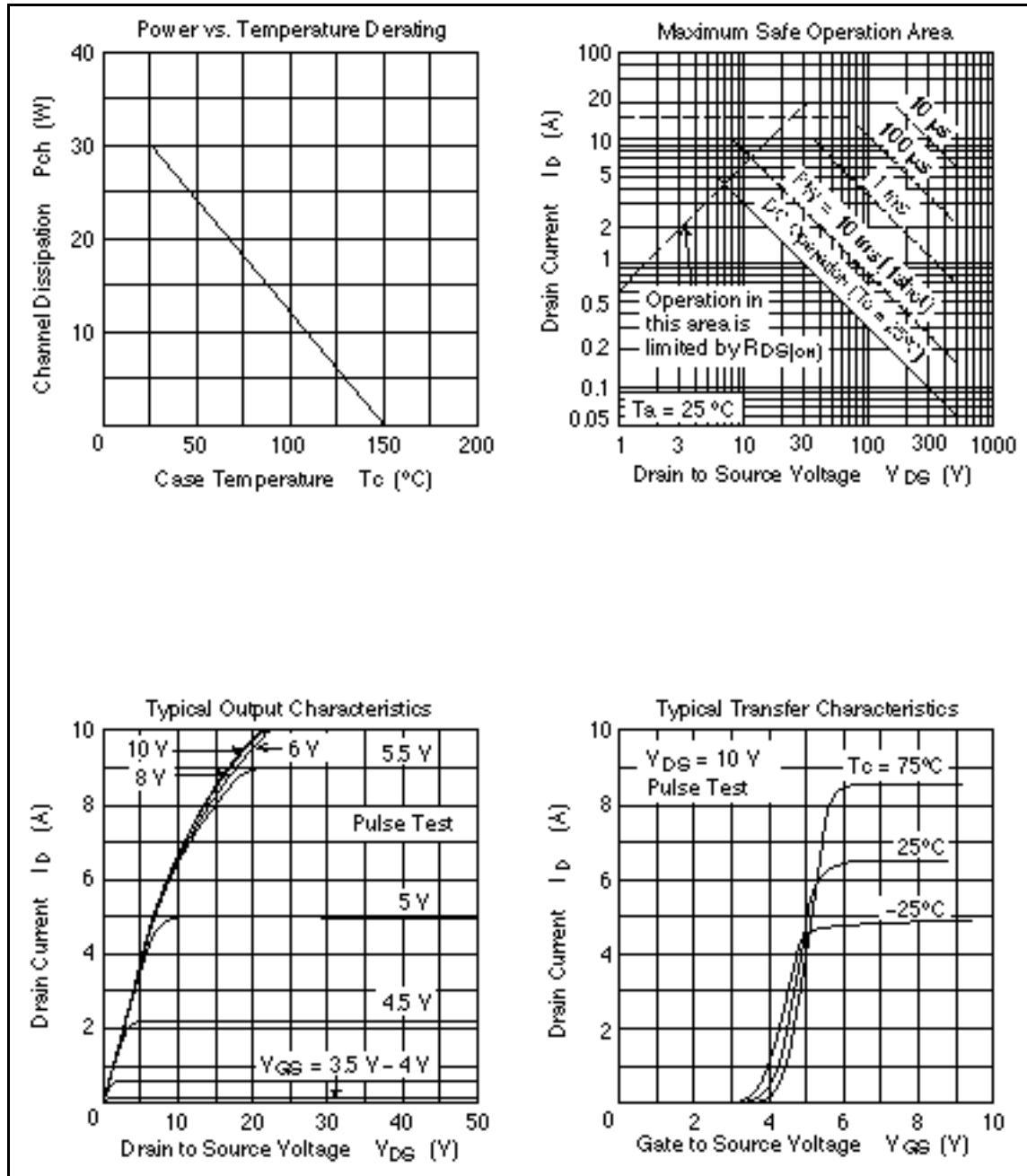
## Electrical Characteristics (Ta = 25°C)

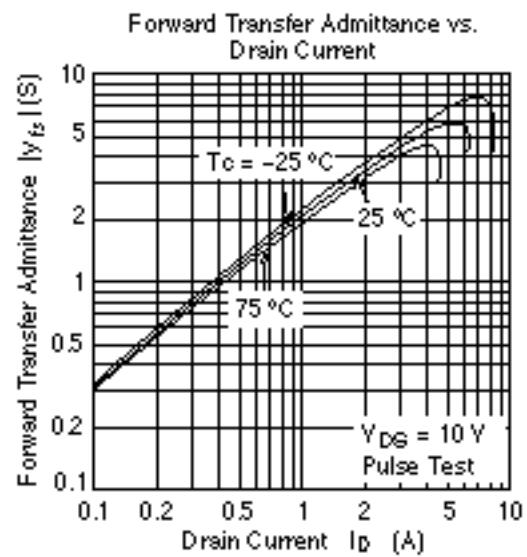
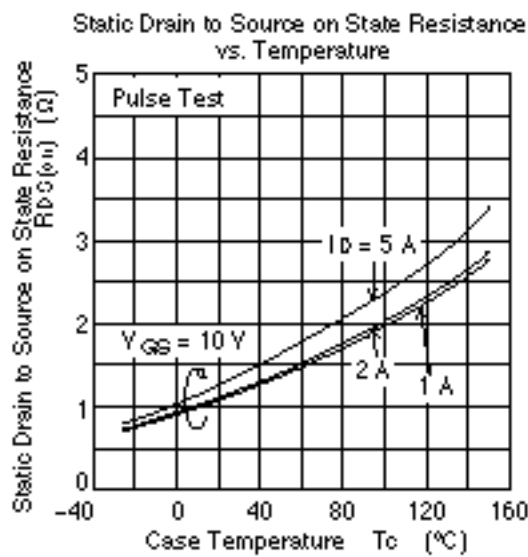
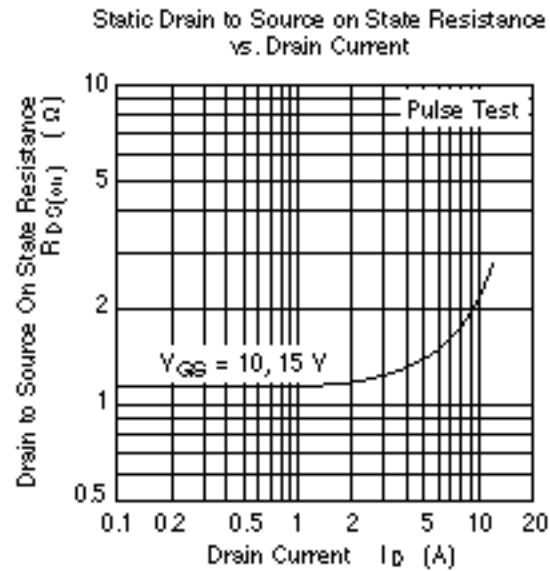
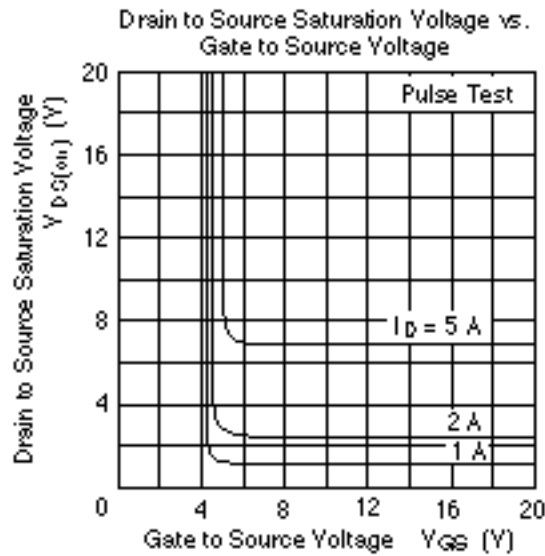
Item	Symbol	Min	Typ	Max	Unit	Test Conditions
Drain to source breakdown voltage	$V_{(BR)DSS}$	500	—	—	V	$I_D = 10\text{mA}, V_{GS} = 0$
Gate to source breakdown voltage	$V_{(BR)GSS}$	±30	—	—	V	$I_G = \pm 100\mu\text{A}, V_{DS} = 0$
Gate to source leak current	$I_{GSS}$	—	—	±10	μA	$V_{GS} = \pm 25\text{V}, V_{DS} = 0$
Zero gate voltage drain current	$I_{DSS}$	—	—	10	μA	$V_{DS} = 500\text{V}, V_{GS} = 0$
Gate to source cutoff voltage	$V_{GS(off)}$	2.5	—	3.5	V	$I_D = 1\text{mA}, V_{DS} = 10\text{V}^{*1}$
Static drain to source on state resistance	$R_{DS(on)}$	—	1.2	1.6		$I_D = 3\text{A}, V_{GS} = 10\text{V}^{*1}$
Forward transfer admittance	$ y_{fs} $	2.5	4.5	—	S	$I_D = 3\text{A}, V_{DS} = 10\text{V}^{*1}$
Input capacitance	$C_{iss}$	—	630	—	pF	$V_{DS} = 10\text{V}$
Output capacitance	$C_{oss}$	—	250	—	pF	$V_{GS} = 0$
Reverse transfer capacitance	$C_{rss}$	—	55	—	pF	$f = 1\text{MHz}$
Total gate charge	$Q_g$	—	13.5	—	nc	$V_{DD} = 400\text{V}$
Gate to source charge	$Q_{gs}$	—	3.5	—	nc	$V_{GS} = 10\text{V}$
Gate to drain charge	$Q_{gd}$	—	5.0	—	nc	$I_D = 5\text{A}$
Turn-on delay time	$t_{d(on)}$	—	11	—	ns	$V_{GS} = 10\text{V}, I_D = 3\text{A}$
Rise time	$t_r$	—	45	—	ns	$R_L = 10$
Turn-off delay time	$t_{d(off)}$	—	40	—	ns	
Fall time	$t_f$	—	50	—	ns	
Body to drain diode forward voltage	$V_{DF}$	—	0.95	—	V	$I_D = 5\text{A}, V_{GS} = 0$
Body to drain diode reverse recovery time	$t_{rr}$	—	200	—	ns	$I_F = 5\text{A}, V_{GS} = 0$ $diF/dt = 100\text{A}/\mu\text{s}$

Note: 1. Pulse test

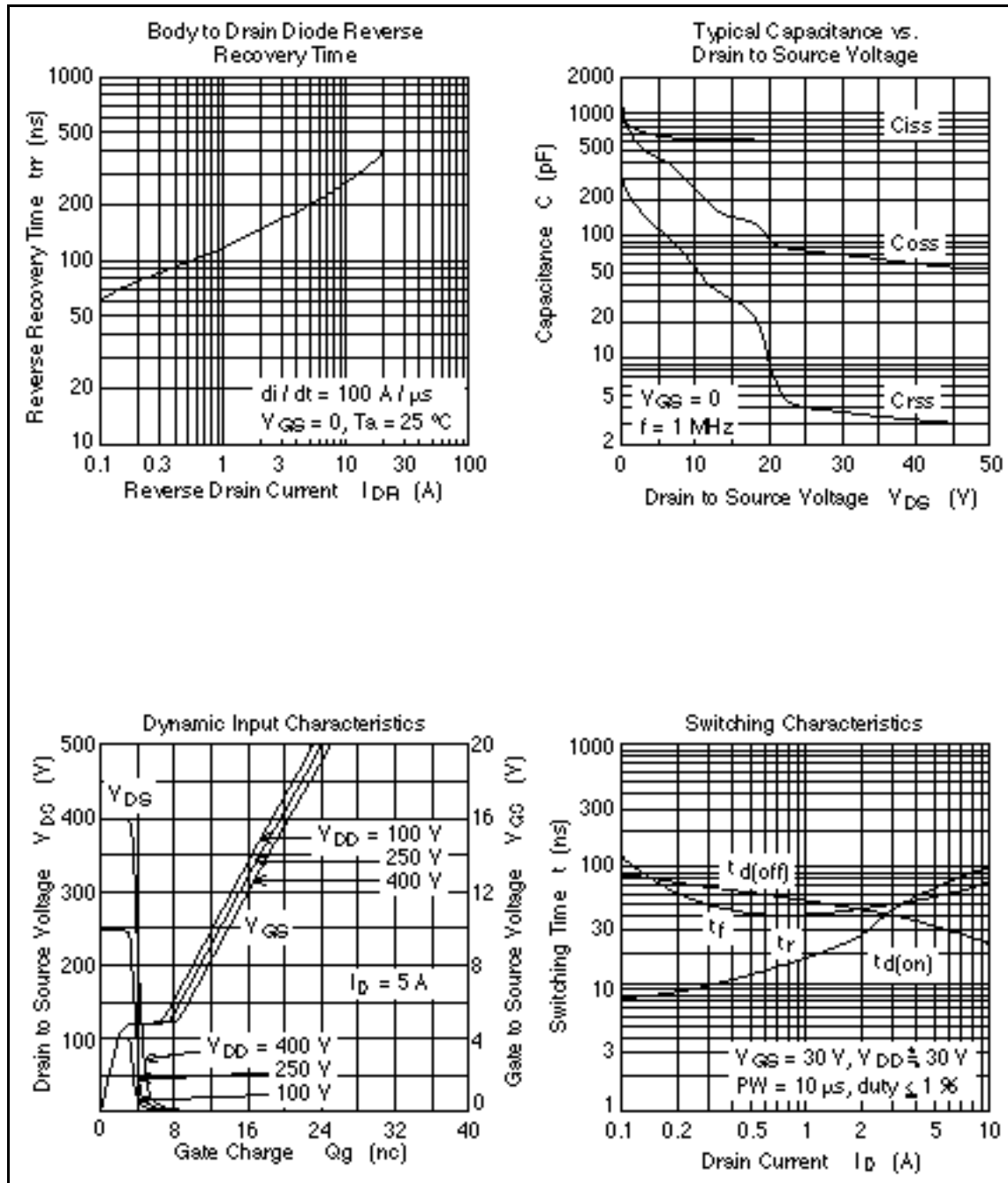
## 2SK2725

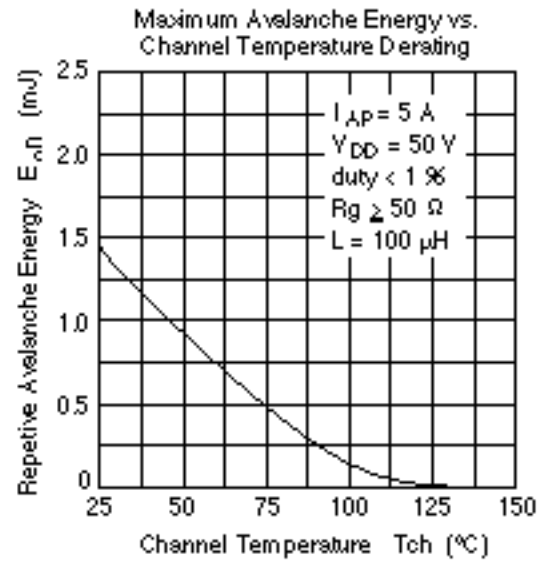
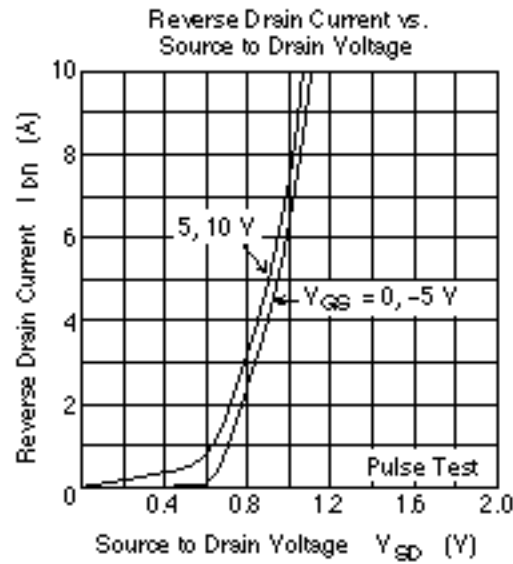
### Main Characteristics



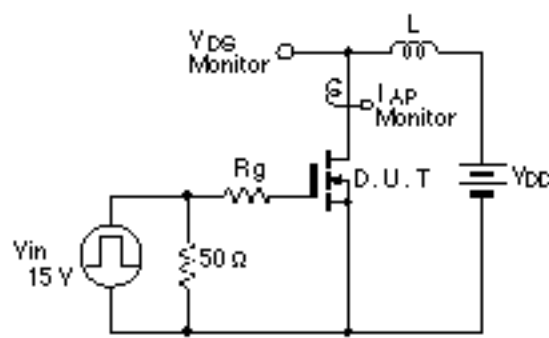


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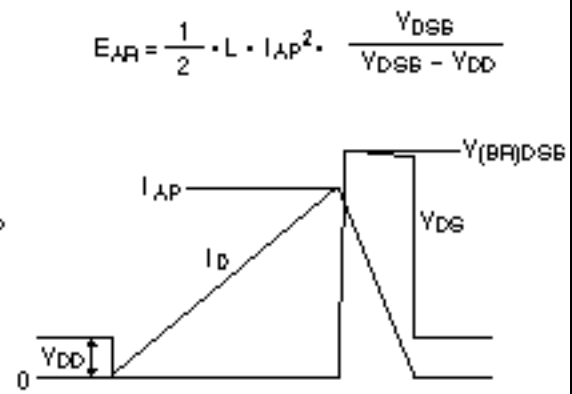


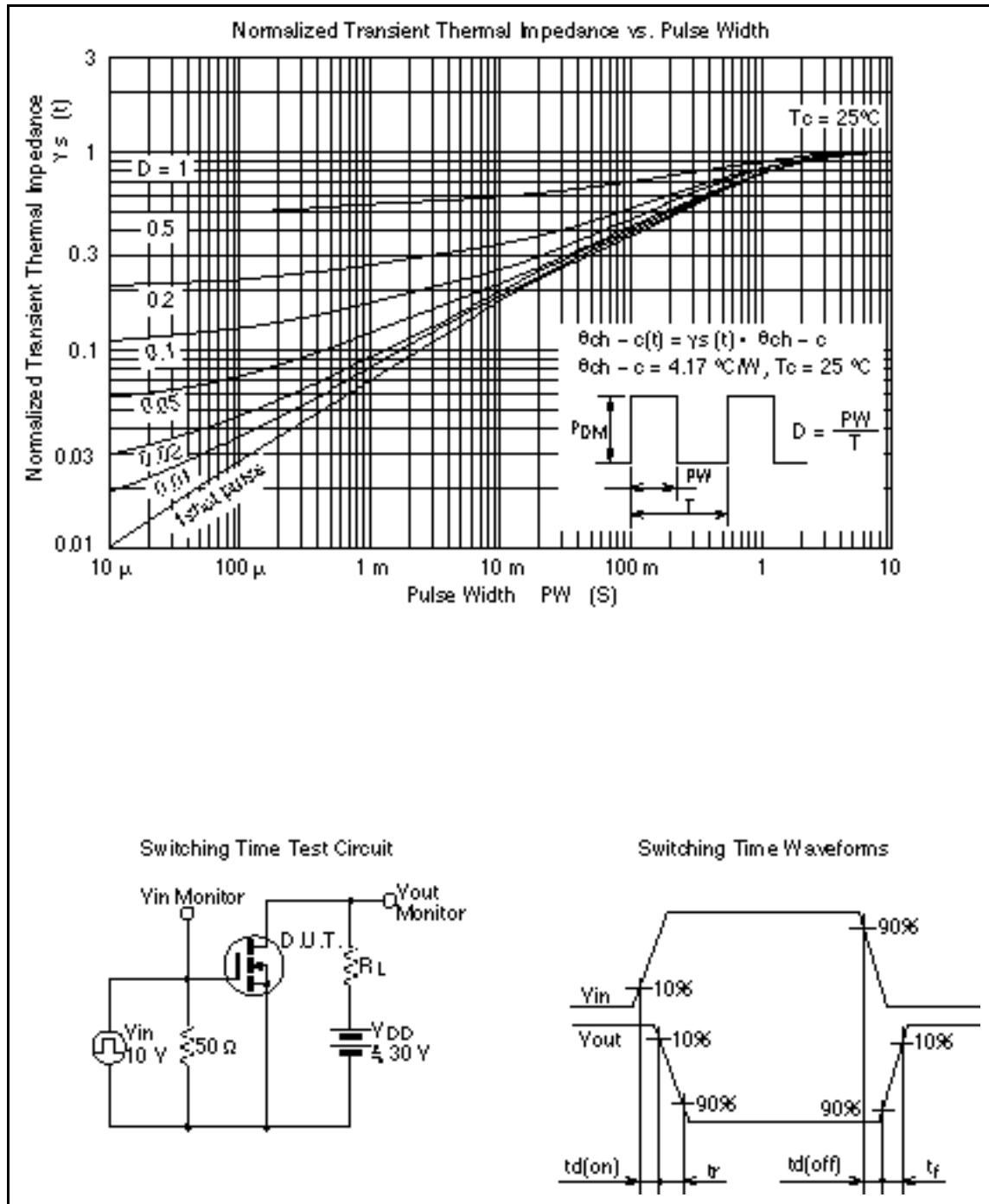


Avalanche Test Circuit



Avalanche Waveform

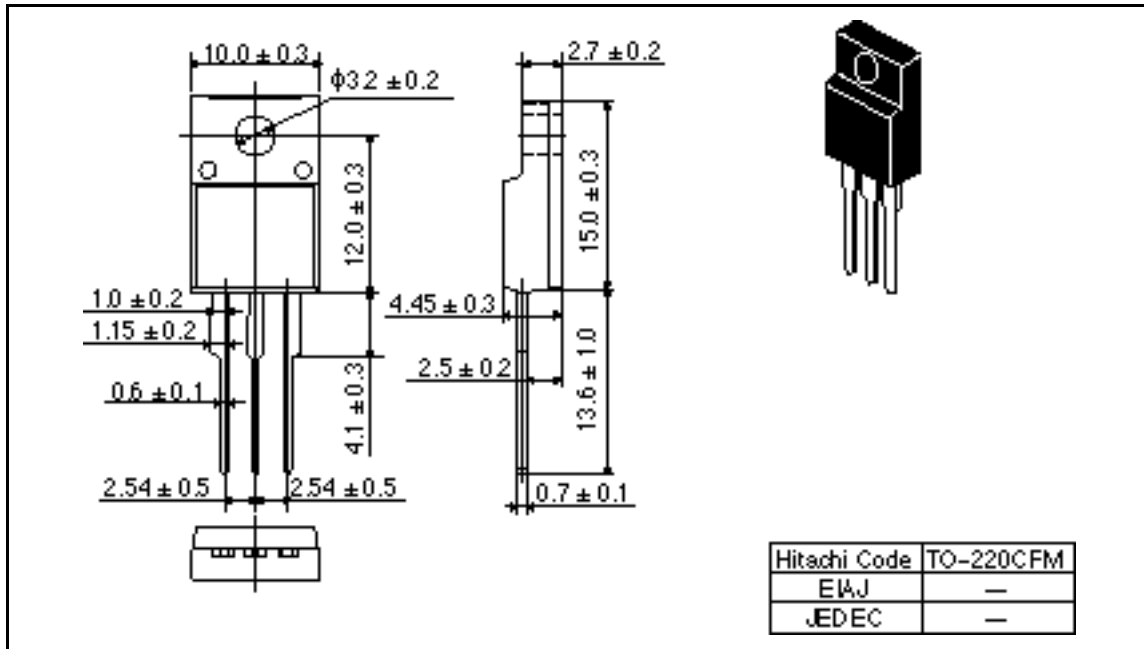






Package Dimensions

Unit: mm



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