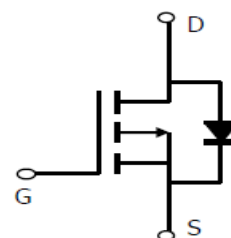
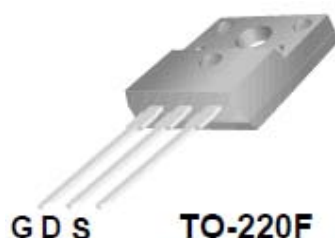


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PRODUCT SUMMARY

$V_{(BR)DSS}$	$R_{DS(ON)}$	I_D
600V	0.75Ω @ $V_{GS} = 10V$	10A



ABSOLUTE MAXIMUM RATINGS ($T_C = 25\text{ }^\circ\text{C}$ Unless Otherwise Noted)

PARAMETERS/TEST CONDITIONS		SYMBOL	LIMITS	UNITS
Drain-Source Voltage		V_{DS}	600	V
Gate-Source Voltage		V_{GS}	± 30	
Continuous Drain Current ²	$T_C = 25\text{ }^\circ\text{C}$	I_D	10	A
	$T_C = 100\text{ }^\circ\text{C}$		6	
Pulsed Drain Current ^{1, 2}		I_{DM}	40	
Avalanche Current ³		I_{AS}	6.8	
Avalanche Energy ³	$L = 10\text{mH}$	E_{AS}	236	mJ
Power Dissipation ^A	$T_A = 25\text{ }^\circ\text{C}$	P_D	44	W
	$T_A = 100\text{ }^\circ\text{C}$		17	
Operating Junction & Storage Temperature Range		T_J, T_{STG}	-55 to 150	$^\circ\text{C}$

THERMAL RESISTANCE RATINGS

THERMAL RESISTANCE	SYMBOL	TYPICAL	MAXIMUM	UNITS
Junction-to-Case	$R_{\theta JC}$		0.8	$^\circ\text{C} / \text{W}$
Junction-to-Ambient	$R_{\theta JA}$		62.5	

¹ Pulse width limited by maximum junction temperature.

² Limited only by maximum temperature allowed

³ $V_{DD} = 60V$, starting $T_J = 25\text{ }^\circ\text{C}$

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PARAMETER	SYMBOL	TEST CONDITIONS	LIMITS			UNIT
			MIN	TYP	MAX	
STATIC						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	$V_{GS} = 0V, I_D = 250\mu A$	600			V
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = 250\mu A$	2.5		4.5	
Gate-Body Leakage	I_{GSS}	$V_{DS} = 0V, V_{GS} = \pm 30V$			± 250	nA
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS} = 600V, V_{GS} = 0V, T_C = 25^\circ C$			25	μA
		$V_{DS} = 600V, V_{GS} = 0V, T_C = 100^\circ C$			250	
Drain-Source On-State	$R_{DS(ON)}$	$V_{GS} = 10V, I_D = 5A$		0.6	0.75	Ω
Forward Transconductance ¹	g_{fs}	$V_{DS} = 10V, I_D = 5A$		9.4		S
DYNAMIC						
Input Capacitance	C_{iss}	$V_{GS} = 0V, V_{DS} = 25V, f = 1MHz$		2120		pF
Output Capacitance	C_{oss}			240		
Reverse Transfer Capacitance	C_{rss}			38		
Total Gate Charge ²	Q_g	$V_{DD} = 300V, I_D = 10A, V_{GS} = 10V$		37		nC
Gate-Source Charge ²	Q_{gs}			10		
Gate-Drain Charge ²	Q_{gd}			11.7		
Turn-On Delay Time ²	$t_{d(on)}$	$V_{DD} = 300V, I_D = 10A, R_G = 25\Omega$		55		nS
Rise Time ²	t_r			30		
Turn-Off Delay Time ²	$t_{d(off)}$			210		
Fall Time ²	t_f			40		
SOURCE-DRAIN DIODE RATINGS AND CHARACTERISTICS ($T_C = 25^\circ C$)						
Continuous Current ³	I_S				10	A
Forward Voltage ¹	V_{SD}	$I_F = 10A, V_{GS} = 0V$			1.5	V
Reverse Recovery Time	t_{rr}	$I_F = 10A, di_F/dt = 100A/\mu S$ $V_{GS} = 0V$		490		nS
Reverse Recovery Charge	Q_{rr}			4.2		nC

¹ Pulse test : Pulse Width $\leq 300 \mu sec$, Duty Cycle $\leq 2\%$.

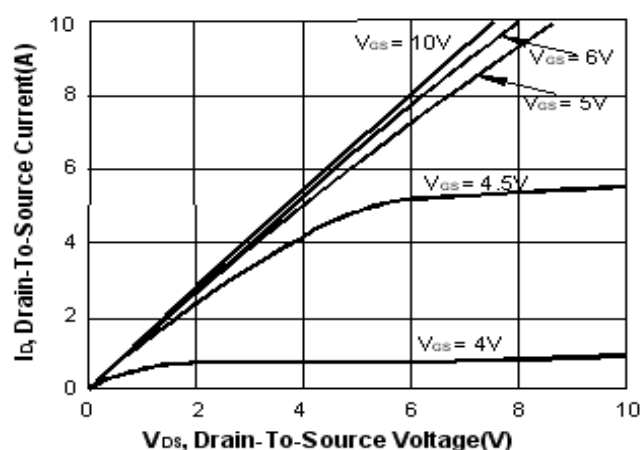
² Independent of operating temperature.

³ Pulse width limited by maximum junction temperature.

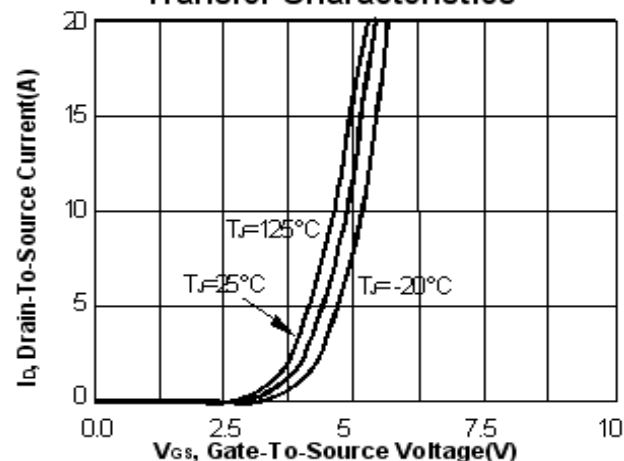
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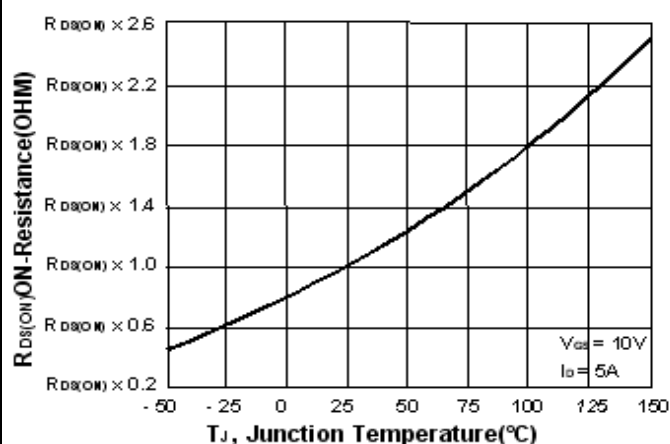
Output Characteristics



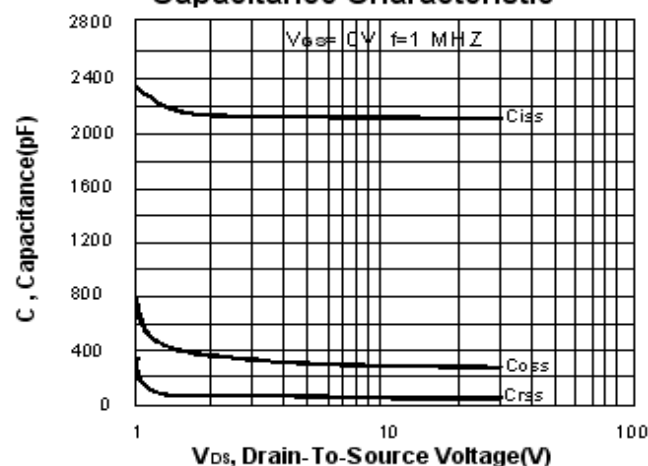
Transfer Characteristics



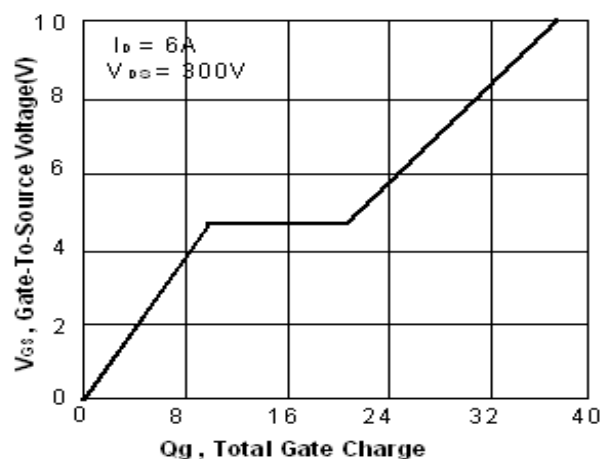
On-Resistance VS Temperature



Capacitance Characteristic



Gate charge Characteristics



Source-Drain Diode Forward Voltage

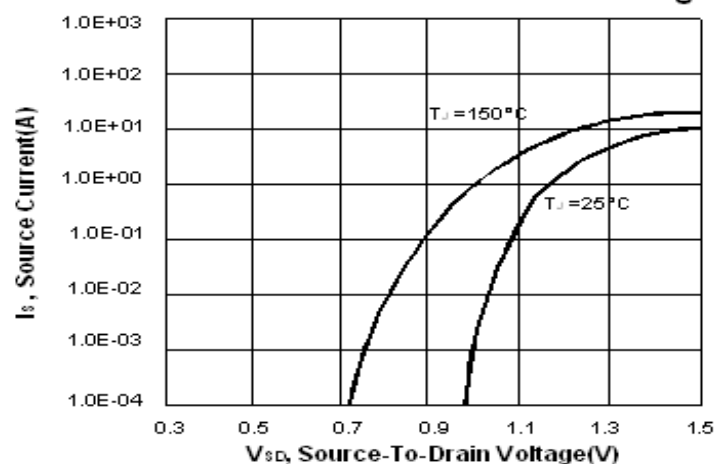


Figure 1
Gate Charge Test Circuit

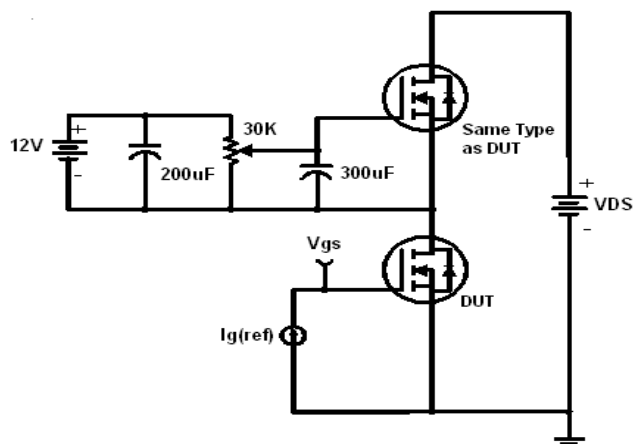


Figure 2
Gate Charge Waveform

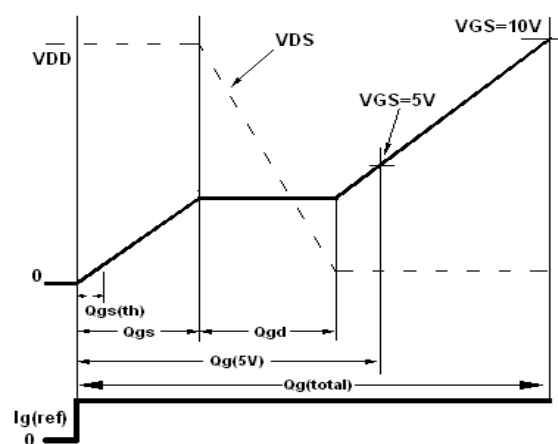


Figure 3
Switching Time Test Circuit

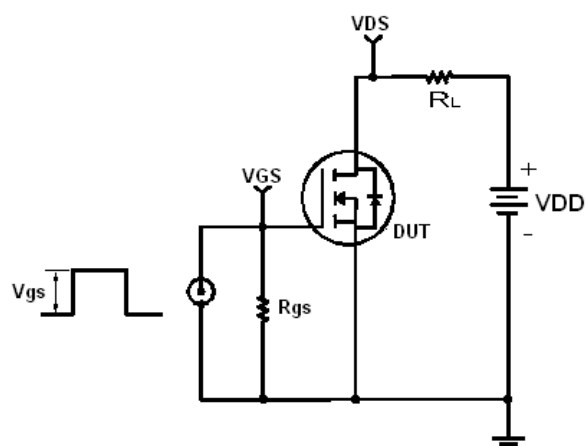


Figure 4
Switching Time Waveforms

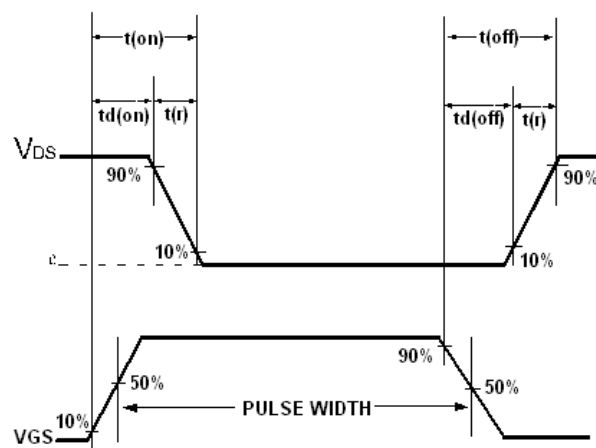


Figure 5
Unclamped Energy Test Circuit

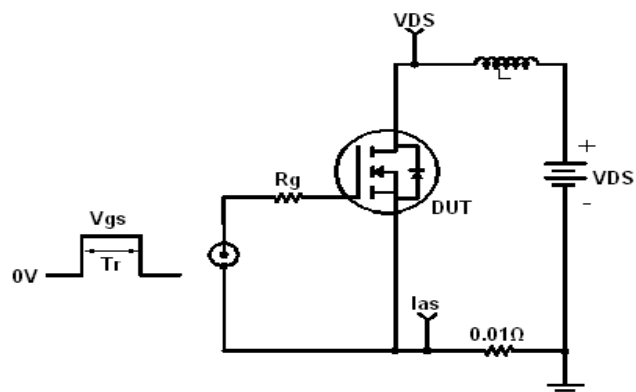


Figure 6
Unclamped Energy Waveforms

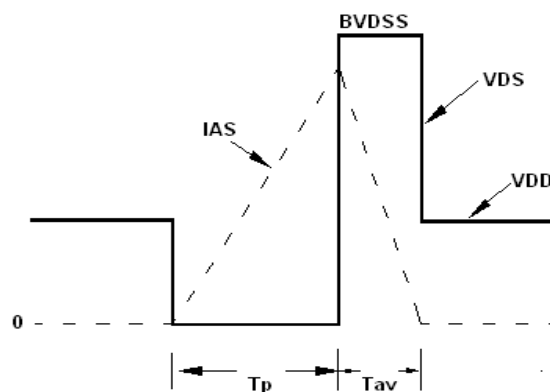


Figure 7

Diode Recovery Test Circuit

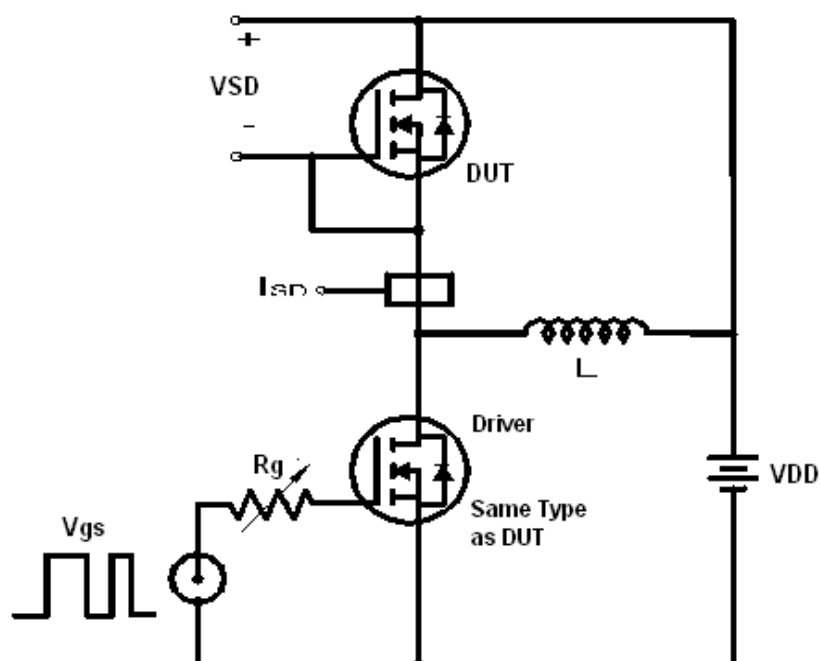
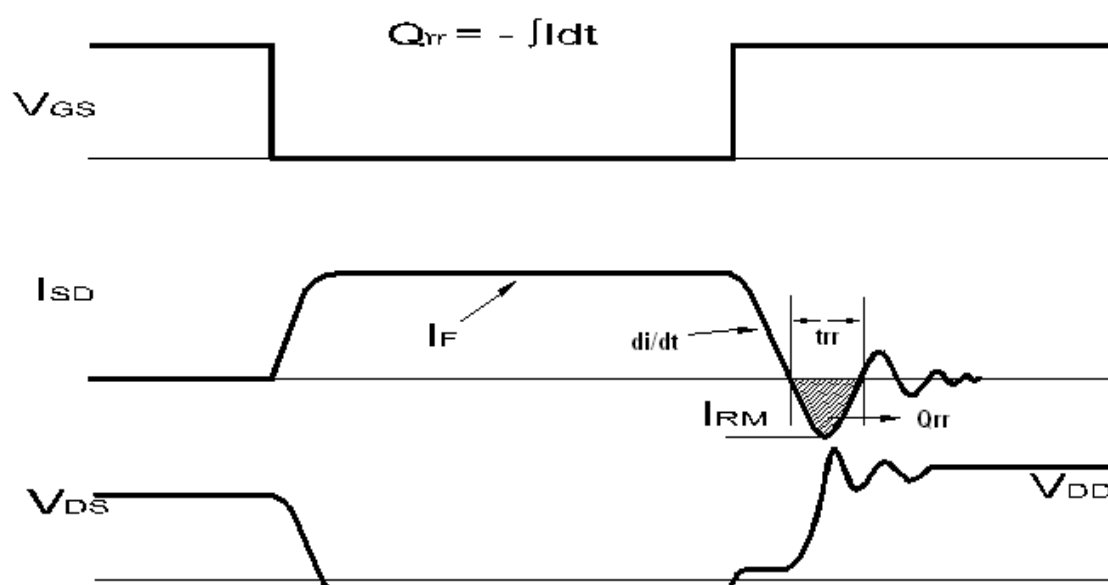


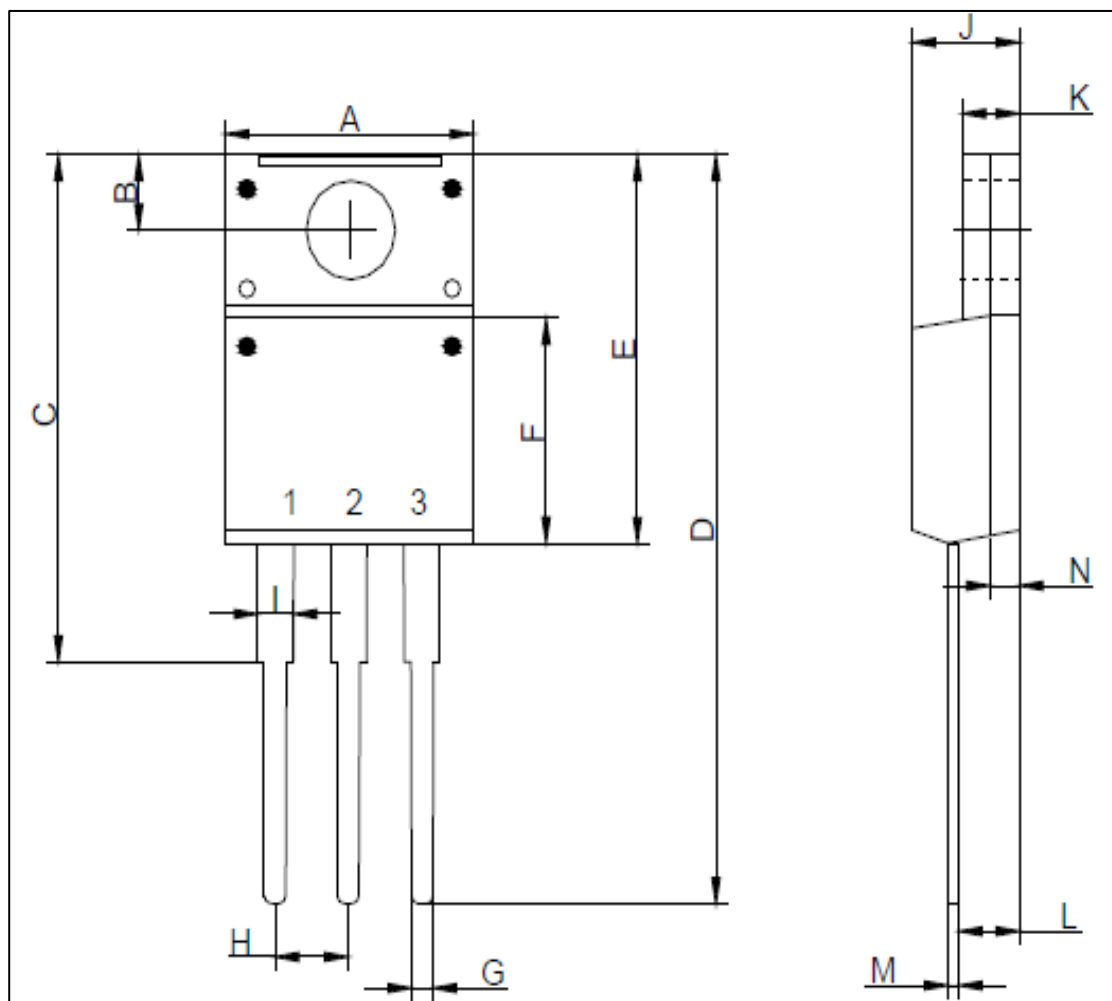
Figure 8

Diode Recovery Test Waveforms



TO-220F (3-Lead) MECHANICAL DATA

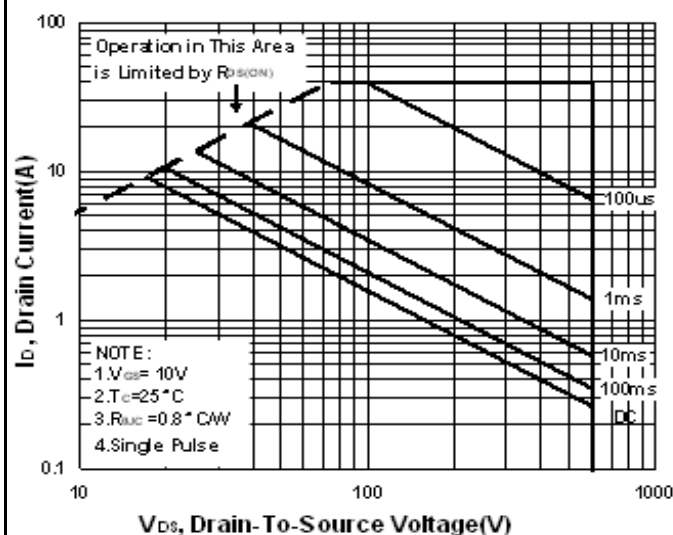
Dimension	mm			Dimension	mm		
	Min.	Typ.	Max.		Min.	Typ.	Max.
A	9.96	10	10.6	H	2.1	2.54	2.94
B	2.4	3	3.38	I	0.95	1.2	1.39
C	18.1	19.1	19.7	J	4.3	4.5	4.93
D	27.3	28.4	30	K	2.5	2.8	3.2
E	14.7	18.57	19.37	L	2.3	2.5	2.96
F	8.8	9.17	9.8	M	0.45	0.7	0.8
G	0.5	0.75	0.91	N	1.05	1.1	1.3



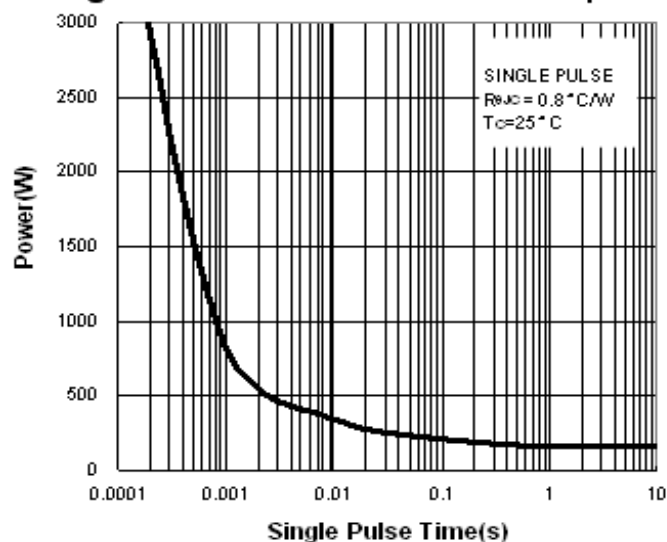
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Safe Operating Area



Single Pulse Maximum Power Dissipation



Transient Thermal Response Curve

