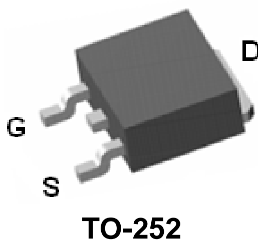
UNIKC Semiconductor

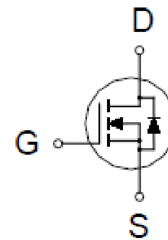
P8008BD

N-Channel Enhancement Mode MOSFET

PRODUCT SUMMARY

$V_{(BR)DSS}$	$R_{DS(ON)}$	I_D
80V	80mΩ @V_{GS} = 10V	15A





ABSOLUTE MAXIMUM RATINGS (T_A = 25 °C Unless Otherwise Noted)

PARAMETERS/TEST CONDITIONS		SYMBOL	LIMITS	UNITS
Drain-Source Voltage		V_{DS}	80	V
Gate-Source Voltage		V_{GS}	±25	
Continuous Drain Current	T_C = 25 °C	I_D	15	A
	T_C = 100 °C		10	
Pulsed Drain Current[1]		I_{DM}	60	
Avalanche Current[1]		I_{AS},I_{AR}	23	
Avalanche Energy	L=0.1mH	E_{AS}	27	mJ
Repetitive Avalanche Energy[1]		E_{AR}	See Figure5,6	
Power Dissipation	T_C = 25 °C	P_D	39	W
	T_C = 100 °C		15	
Junction & Storage Temperature Range		T_J, T_{STG}	-55 to 150	°C

THERMAL RESISTANCE RATINGS

THERMAL RESISTANCE	SYMBOL	TYPICAL	MAXIMUM	UNITS
Junction-to-Case	$R_{\theta JC}$		3.2	°C / W
Junction-to-Ambient	$R_{\theta JA}$		50	

[1]Pulse width limited by maximum junction temperature.

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ELECTRICAL CHARACTERISTICS (T_C = 25 °C, Unless Otherwise Noted)

PARAMETER	SYMBOL	TEST CONDITIONS	LIMITS			UNITS
			MIN	TYP	MAX	
STATIC						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	V_{GS} = 0V, I_D = 250μA	80			V
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS} = V_{GS}, I_D = 250μA	1	1.9	3	V
Gate-Body Leakage	I_{GSS}	V_{DS} = 0V, V_{GS} = ±25V			±100	nA
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS} = 64V, V_{GS} = 0V			1	μA
		V_{DS} = 60V, V_{GS} = 0V , T_J = 125°C			10	
On-State Drain Current[1]	$I_{D(ON)}$	V_{DS} = 5V, V_{GS} = 10V	60			A
Drain-Source On-State Resistance[1]	$R_{DS(ON)}$	V_{GS} =4.5V, I_D = 10A		65	95	mΩ
		V_{GS} = 10V, I_D = 15A		56	80	
Forward Transconductance[1]	g_{fs}	V_{DS} = 5V, I_D = 15A		15		S
DYNAMIC						
Input Capacitance	C_{iss}	V_{GS} = 0V, V_{DS} = 25V, f = 1MHz		1070		pF
Output Capacitance	C_{oss}			95		
Reverse Transfer Capacitance	C_{rss}			55		
Gate Resistance	R_g	V_{GS} = 0V, V_{DS} = 0V, f = 1MHz		1.35		Ω
Total Gate Charge[2]	Q_g	V_{DS} = 0.5$V_{(BR)DSS}$, V_{GS} = 10V, I_D = 15A		18.6		nC
Gate-Source Charge[2]	Q_{gs}			4.5		
Gate-Drain Charge[2]	Q_{gd}			3.8		
Turn-On Delay Time[2]	$t_{d(on)}$	V_{DS} = 40V, R_L=15Ω I_D ≅ 15A, V_{GS} = 10V, R_{GEN} = 6Ω		25		nS
Rise Time[2]	t_r			290		
Turn-Off Delay Time[2]	$t_{d(off)}$			50		
Fall Time[2]	t_f			160		
SOURCE-DRAIN DIODE RATINGS AND CHARACTERISTICS (T_J = 25 °C)						
Continuous Current	I_S				15	A
Forward Voltage[1]	V_{SD}	I_F = I_S, V_{GS} = 0V			1	V
Reverse Recovery Time	t_{rr}	I_F=15A,dI_F/dt=100A/μS		55		nS
Reverse Recovery Charge	Q_{rr}			85		nC

[1]Pulse test : Pulse Width ≤ 300 μsec, Duty Cycle ≤ 2%.

[2]Independent of operating temperature.

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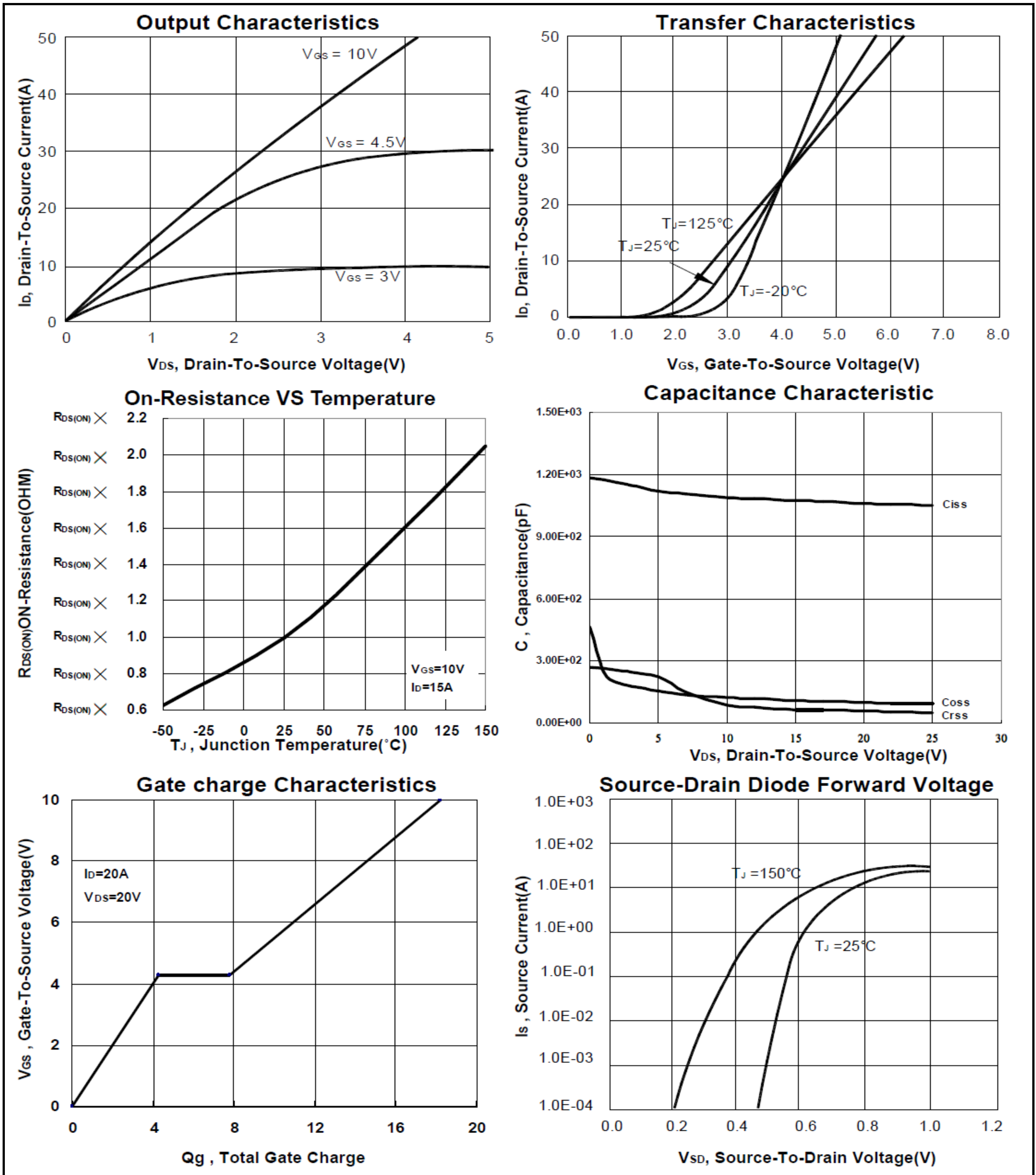

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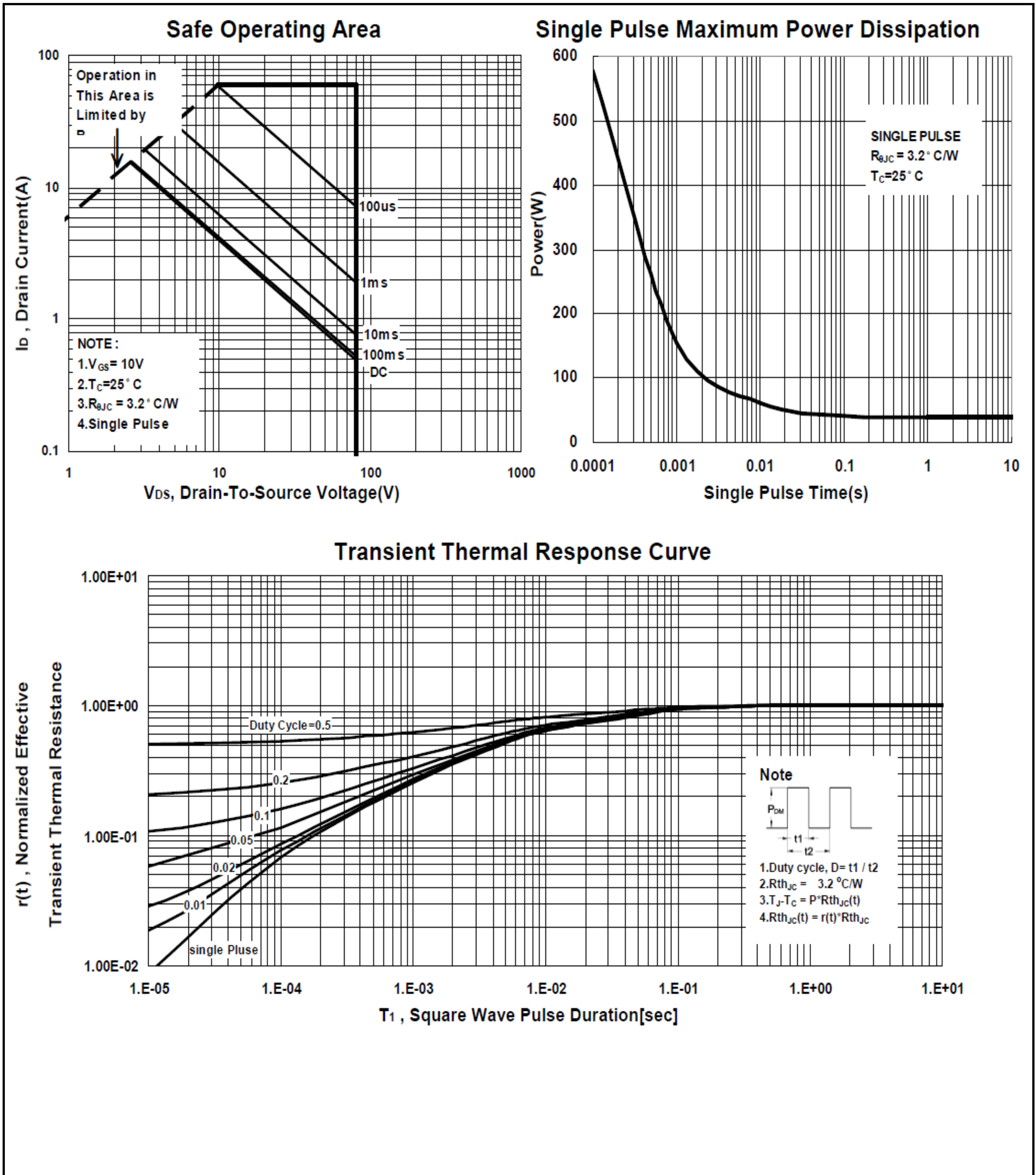

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Figure 1

Gate Charge Test Circuit

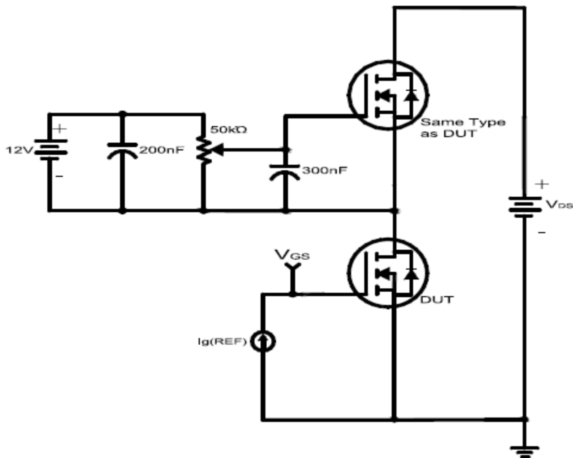


Figure 2

Gate Charge Waveforms

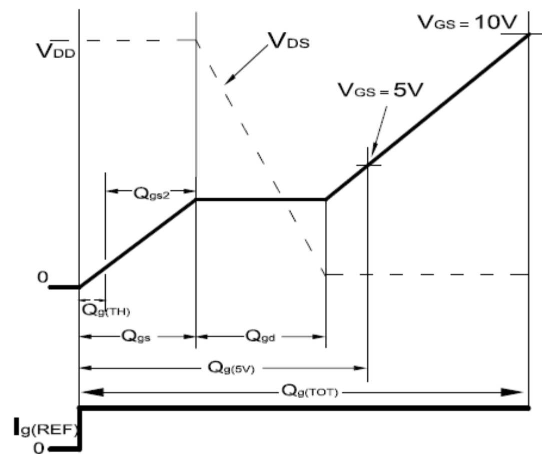


Figure 3

Switching Time Test Circuit

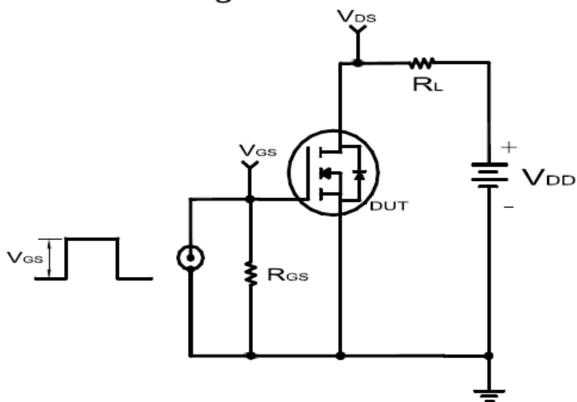


Figure 4

Switching Time Waveforms

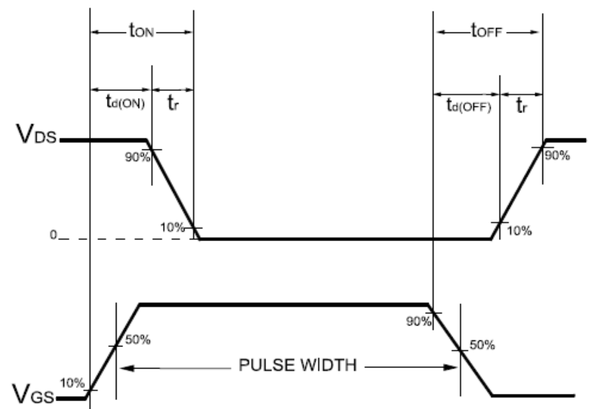


Figure 5

Unclamped Energy Test Circuit

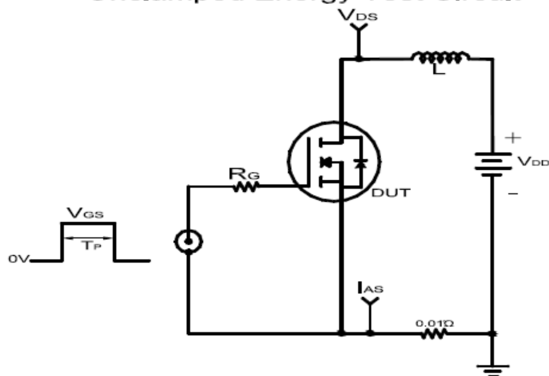


Figure 6

Unclamped Energy Waveforms

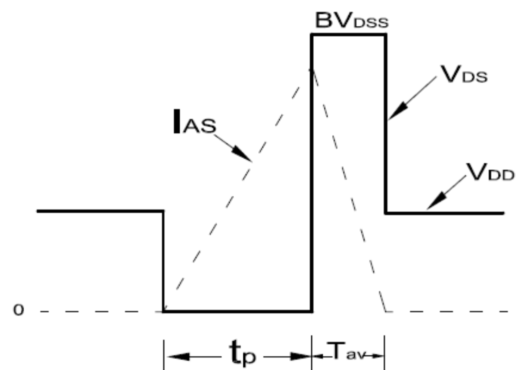


Figure 7
Diode Recovery Test Circuit

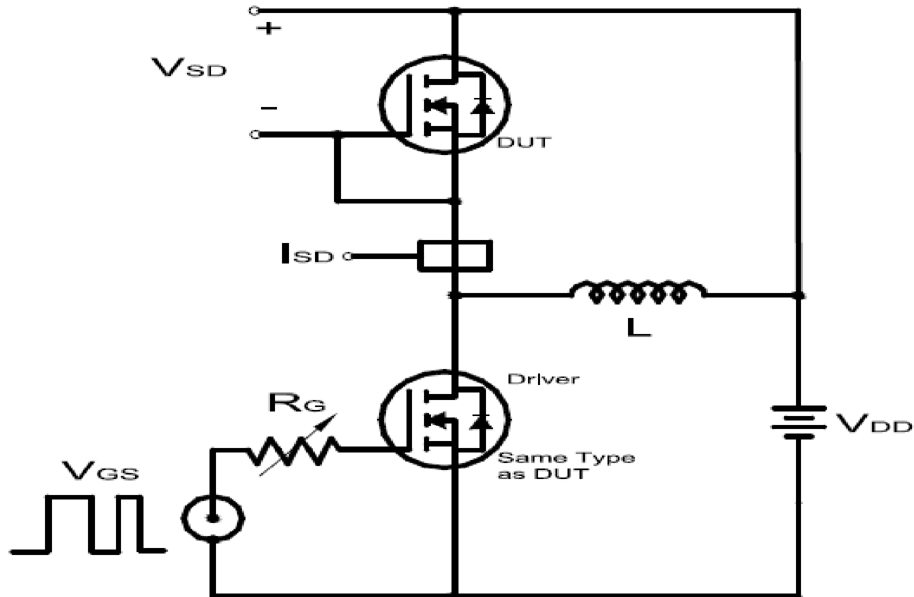
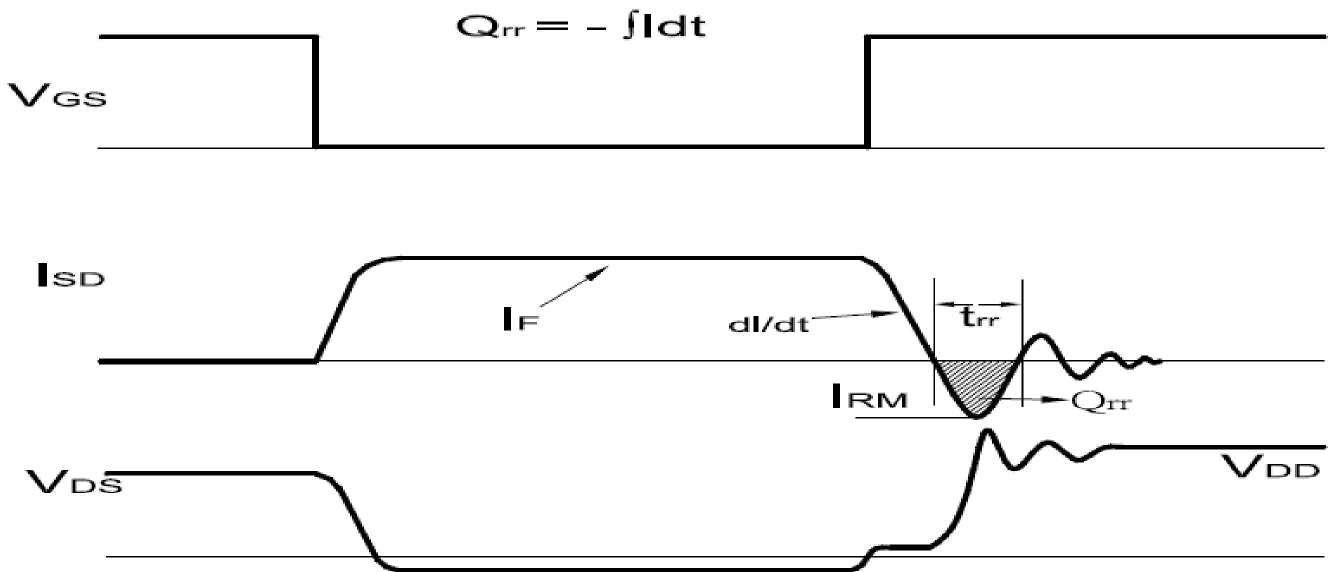


Figure 8
Diode Recovery Test Waveforms



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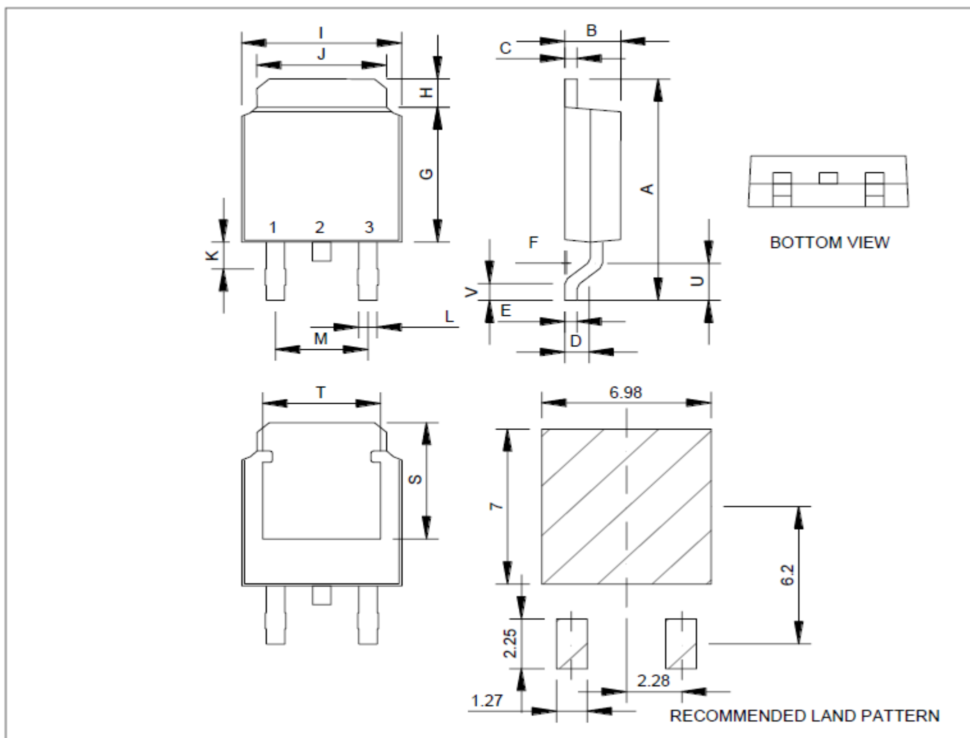
Package Dimension

TO-252 (DPAK) MECHANICAL DATA

Dimension	mm			Dimension	mm		
	Min.	Typ.	Max.		Min.	Typ.	Max.
A	8.9	10	10.41	J	4.8		5.64
B	2.1	2.2	2.4	K	0.15		1.1
C	0.4	0.5	0.61	L	0.4	0.76	0.89
D	0.82	1.2	1.5	M	4.2	4.58	5
E	0.4	0.5	0.61	S	4.9	5.1	5.3
F	0		0.2	T	4.6	4.75	5.44
G	5.3	6.1	6.3	U	1.4		1.78
H	0.9		1.7	V	0.55	1.25	1.7
I	6.3	6.5	6.8				



*因为各家封装模具不同而外观略有所差异，不影响电性及Layout。