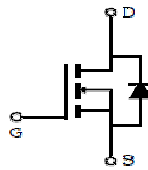


Features

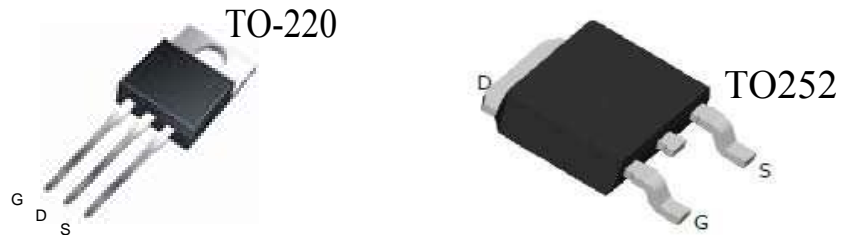
- Lead free and Green Device Available
- Low Rds-on to Minimize Conductive Loss
- High avalanche Current



V_{DSS}	30V
R_{DS(on)} V_{GS}=10V typ.	3.1mΩ
	4.1mΩ
R_{DS(on)} V_{GS}=4.5V typ. max.	4.3mΩ
	7mΩ
I_D @ V_{GS}=10V (Silicon limited)	100A
I_D @ V_{GS}=10V (Package limited)	80A

Application

- Load Switch
- SPMS



1.Gate 2. Drain 3. Source

Absolute Maximum Ratings (T_A=25°C unless otherwise noted)

Symbol	Param	Maximum	Unit	
V _{DSS}	Drain-to-Source Voltage	30	V	
V _{GSS}	Gate-to-Source Voltage	±20	V	
I _D V _{GS} =10V	Continuous Drain Current	T _C =25°C (Silicon limited)	100	A
		T _C =100°C (Silicon limited)	80	
I _D V _{GS} =4.5V		T _C =25°C (Package limited)	70	
		T _C =25°C (Silicon limited)	100	
		T _C =100°C (Silicon limited)	65	
		T _C =25°C (Package limited)	70	
I _{DP}	Pulsed Drain Current	T _C =25°C	-	A
I _{AS}	Avalanche Current (L=0.1mH)		23	A
E _{AS}	Avalanche Energy (L=0.1mH)		26	mJ
P _D	Maximum Power Dissipation	T _C =25°C	71	W
		T _C =100°C	35	
T _J , T _{STG}	Junction & Storage Temperature Range		-55~175	°C

Thermal Characteristics

Symbol	Parameter	Max.	Unit
R _{thJC}	Thermal resistance, junction to case	2.1	°C/W
R _{thJA}	Thermal resistance, junction to ambient	106	°C/W

Electrical Characteristics (TA=25°C unless otherwise noted)

Symbol	Parameter	Test Conditions	Min.	Typ	Max.	Unit
Static Characteristics						
BV_{DSS}	Drain-Source Breakdown Voltage	$V_{GS}=0V, I_D=250\mu A$	30	—	—	V
I_{DSS}	Zero Gate Voltage Drain Current	$V_{DS}=30V, V_{GS}=0V$	—	—	1	μA
$V_{GS(th)}$	Gate Threshold Voltage	$V_{DS}=V_{GS}, I_D=250\mu A$	0.8	—	1.8	V
I_{GSS}	Gate Leakage Current	$V_{GS}=\pm 20V, V_{DS}=0V$	—	—	± 100	nA
$R_{DS(on)}$	Drain-Source On-Resistance	$V_{GS}=10V, I_D=20A$	—	3.1	4.1	m Ω
		$V_{GS}=4.5V, I_D=20A$	—	4.3	7	
G_{fs}	Forward Transconductance	$V_{DS}=5V, I_D=100A$	—	72	—	S
Diode Characteristics						
V_{SD}	Diode Forward Voltage	$I_{SD}=25A, V_{GS}=0V$	—	0.8	1.3	V
I_S	Diode Continuous Forward Current		—	—	50	A
t_{rr}	Reverse Recovery Time	$I_S=20A,$ $di/dt=100A/\mu s$	—	14	—	nS
Q_{rr}	Reverse Recovery Charge		—	2.8	—	nC
Dynamic Characteristics						
R_G	Gate Resistance	$V_{GS}=0V, V_{DS}=0V,$ Frequency=1MHz	—	1.9	—	Ω
C_{iss}	Input Capacitance	$V_{GS}=0V,$ $V_{DS}=15V,$ F=1MHz	—	2999	—	pF
C_{oss}	Output Capacitance		—	335	—	
C_{rss}	Reverse Transfer Capacitance		—	290	—	
$t_{d(on)}$	Turn-On Delay Time	$V_{DS}=15V,$ $I_D=1A,$ $R_g=3\ \Omega,$ $V_{GS}=4.5V$	—	21	—	nS
t_r	Rise Time		—	32	—	
$t_{d(off)}$	Turn-Off Delay Time		—	59	—	
t_f	Fall Time		—	34	—	
Gate Charge Characteristics						
Q_g	Total Gate Charge	$V_{DS}=25V,$ $V_{GS}=4.5V,$ $I_D=14A$	—	26	—	nC
Q_{gs}	Gate-to-Source Charge		—	3.5	—	
Q_{gd}	Gate-to-Drain Charge		—	14	—	

Typical Operating Characteristics

Figure 1. Typ. Output Characteristics

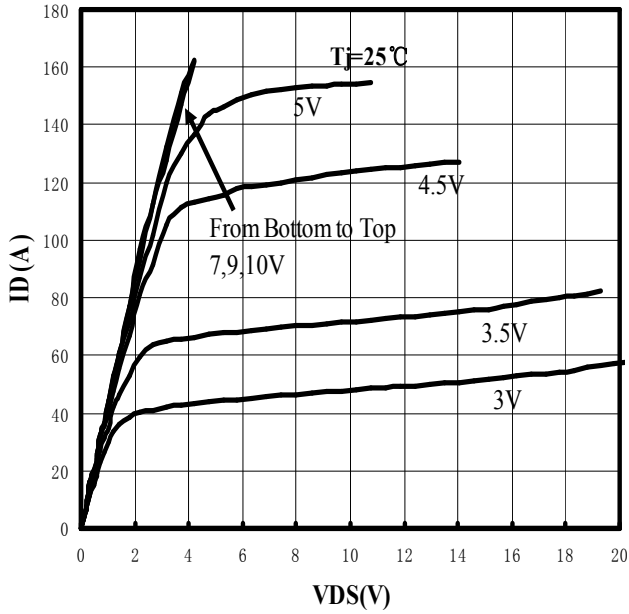


Figure 2. Typ. Output Characteristics

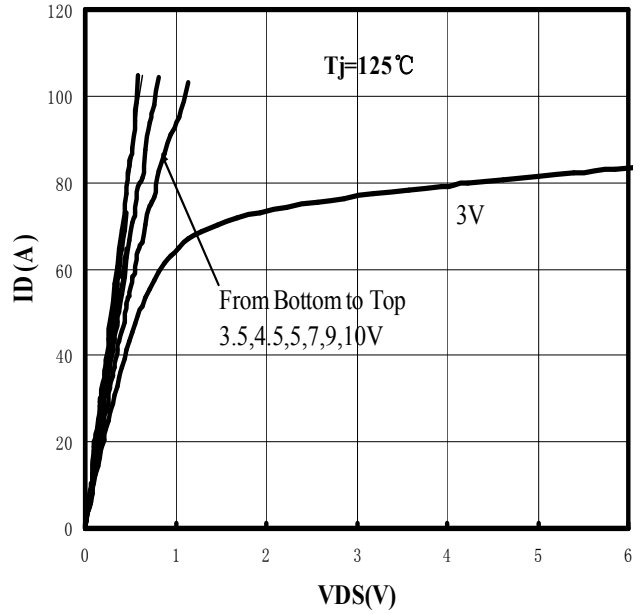


Figure 3. Transfer Characteristics

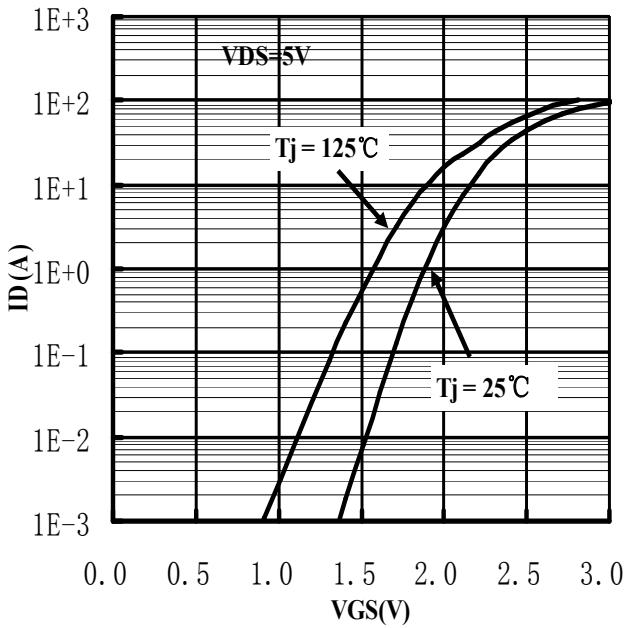
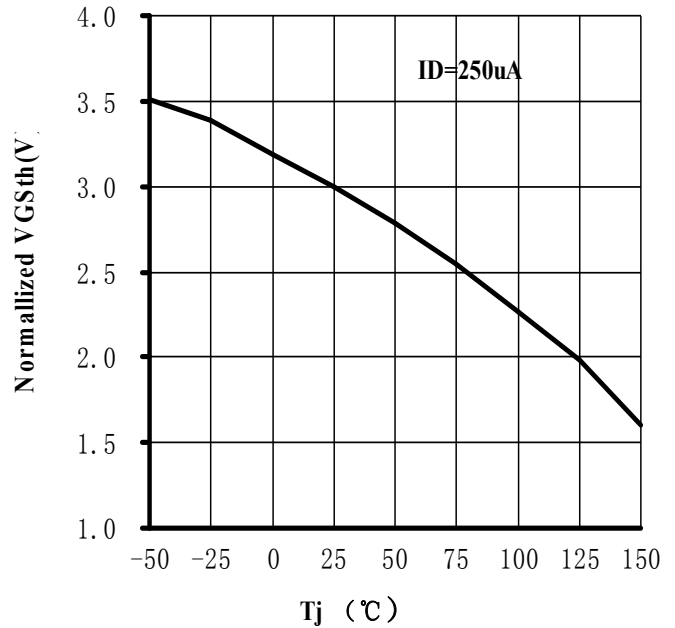


Figure 4. Gate Threshold Voltage Characteristics



Typical Operating Characteristics

Figure 5. Rdson vs. Drain Current Characteristics

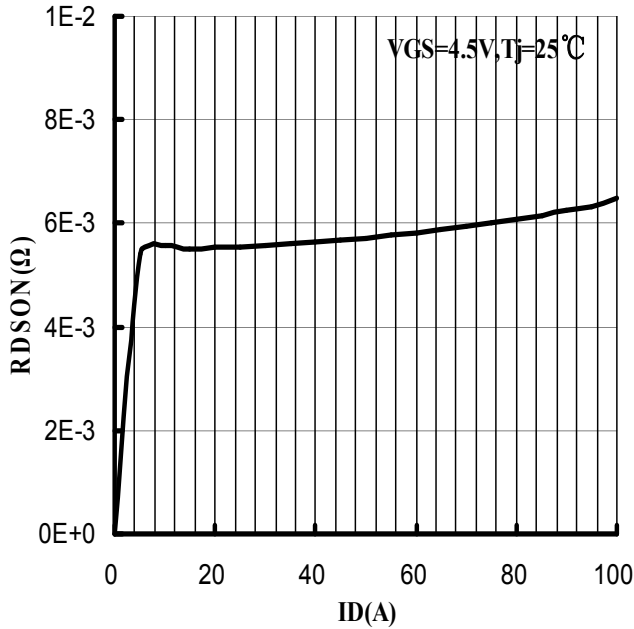


Figure 6. Rdson vs. Junction Tem Characteristics

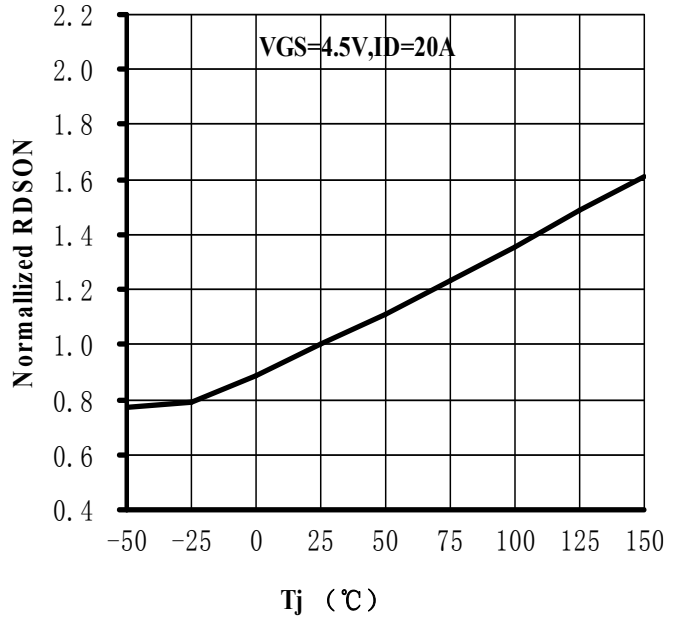


Figure 7. Rdson vs. VGS Characteristics

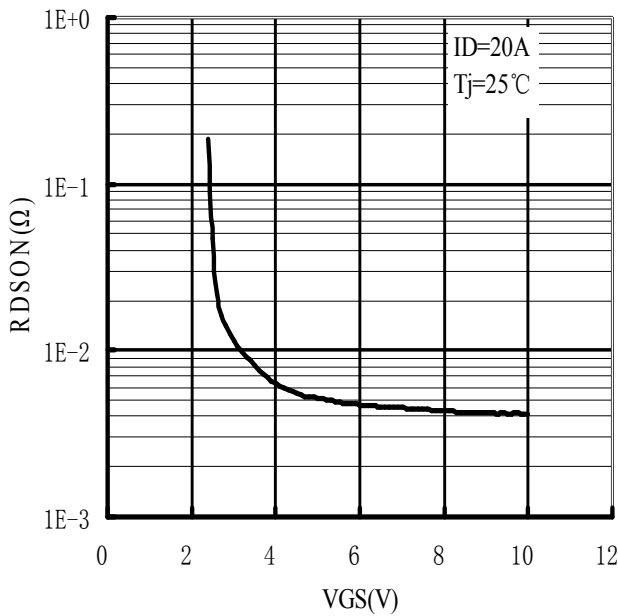
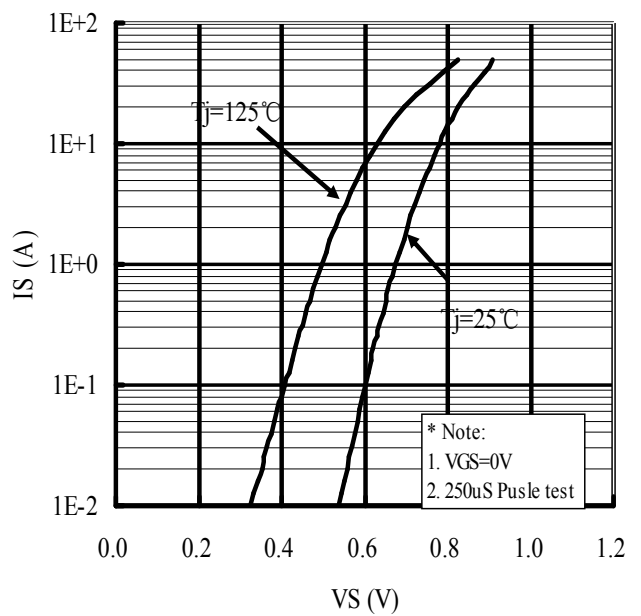


Figure 8. IS vs. VSD Characteristics



Typical Operating Characteristics

Figure 9. Gate Charge Characteristics

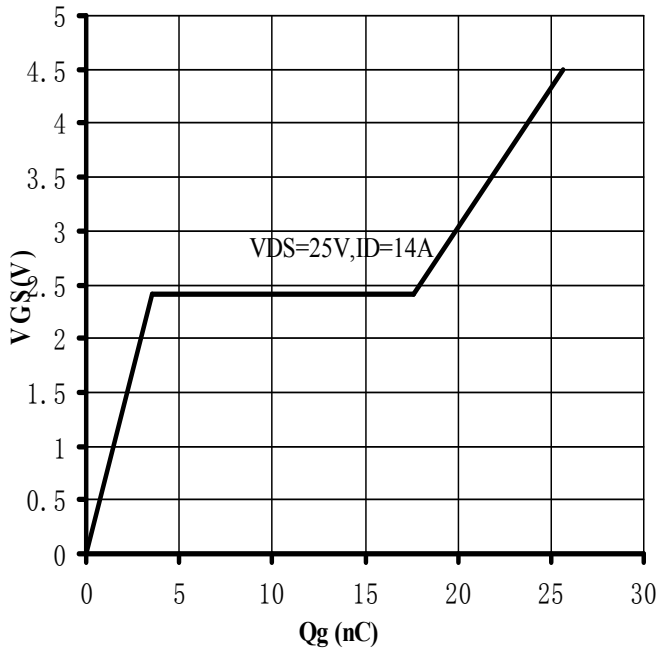


Figure 10. Capacitance Characteristics

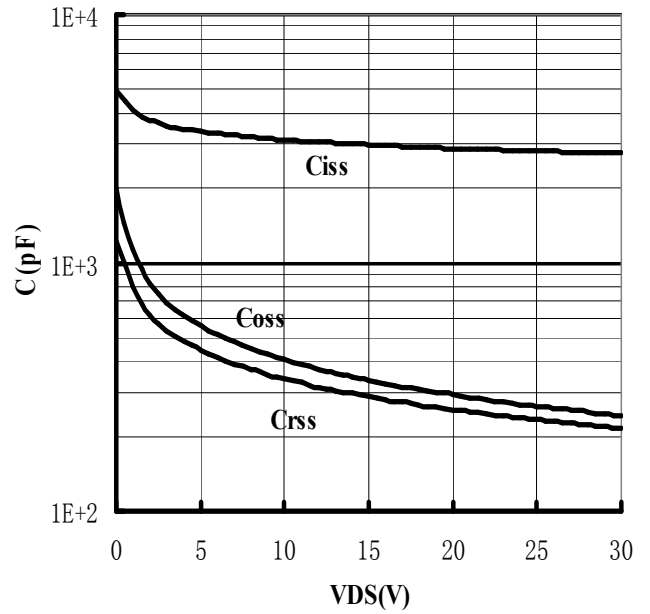
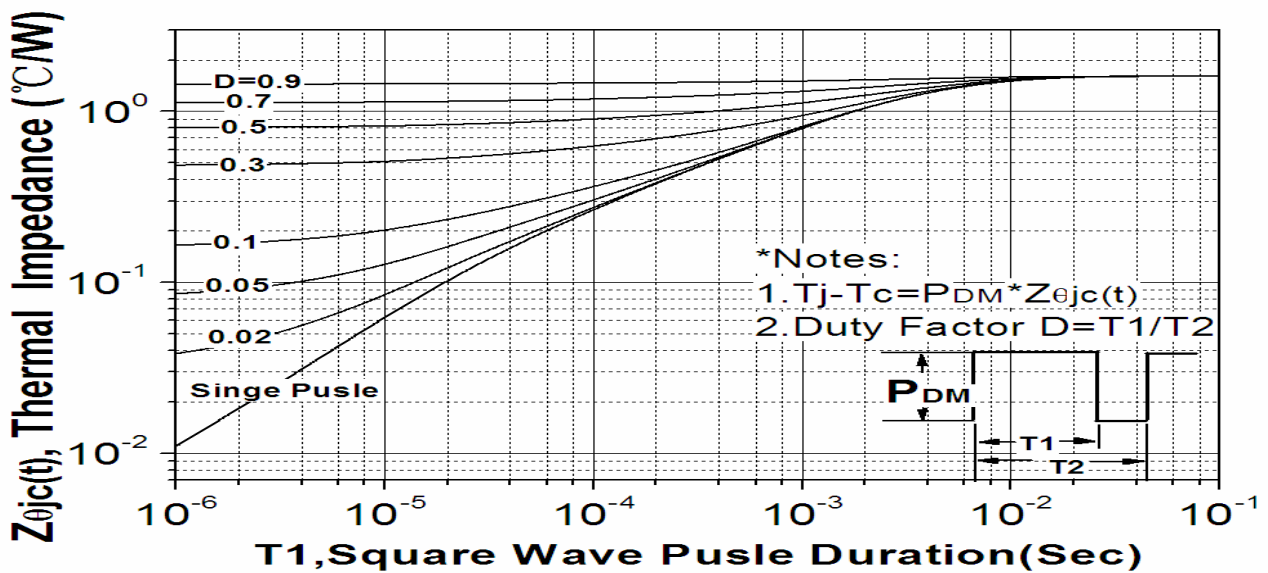
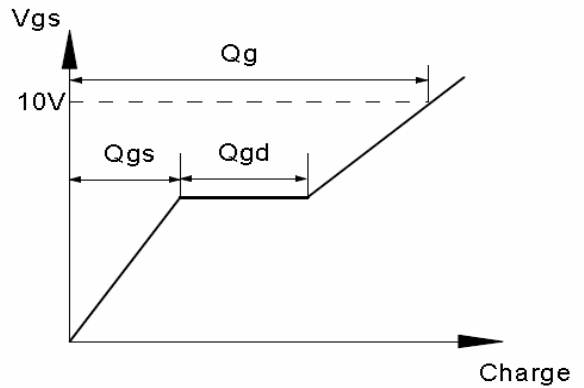
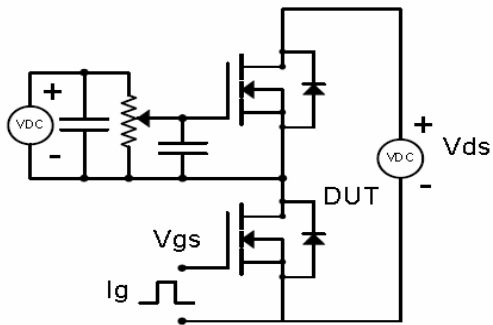


Figure 11. Thermal Resistance Characteristics

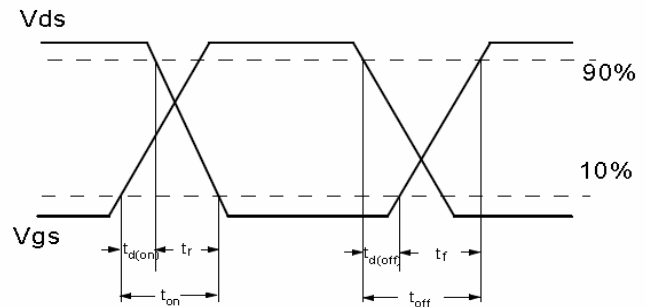
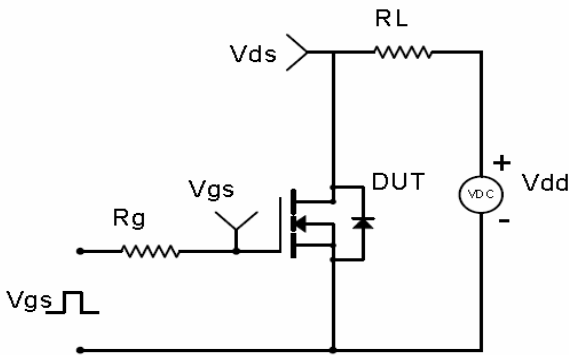


Test Circuit & Waveform

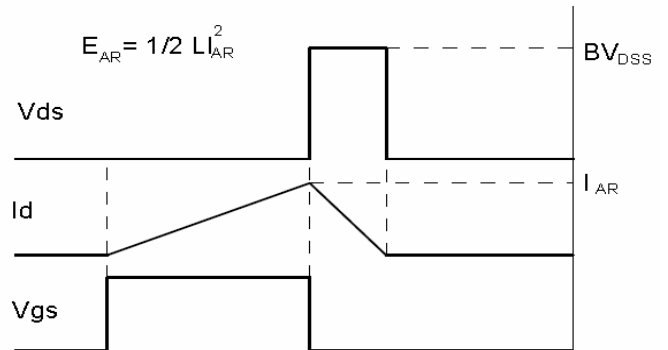
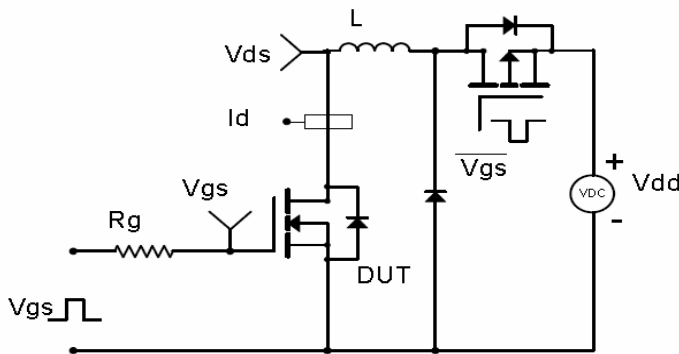
Gate Charge Test Circuit & Waveform



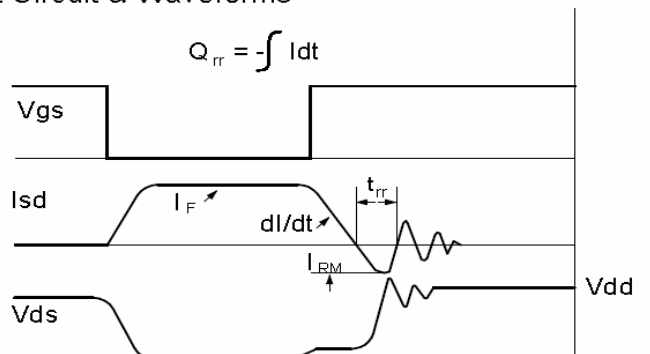
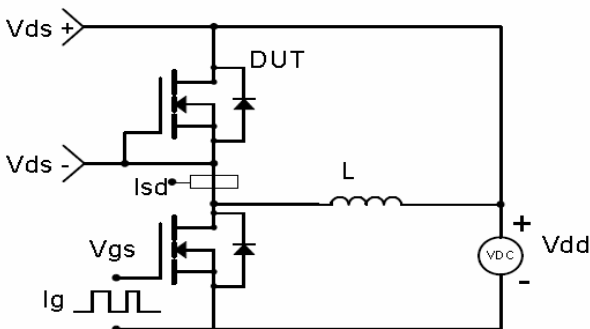
Resistive Switching Test Circuit & Waveforms



Unclamped Inductive Switching (UIS) Test Circuit & Waveforms

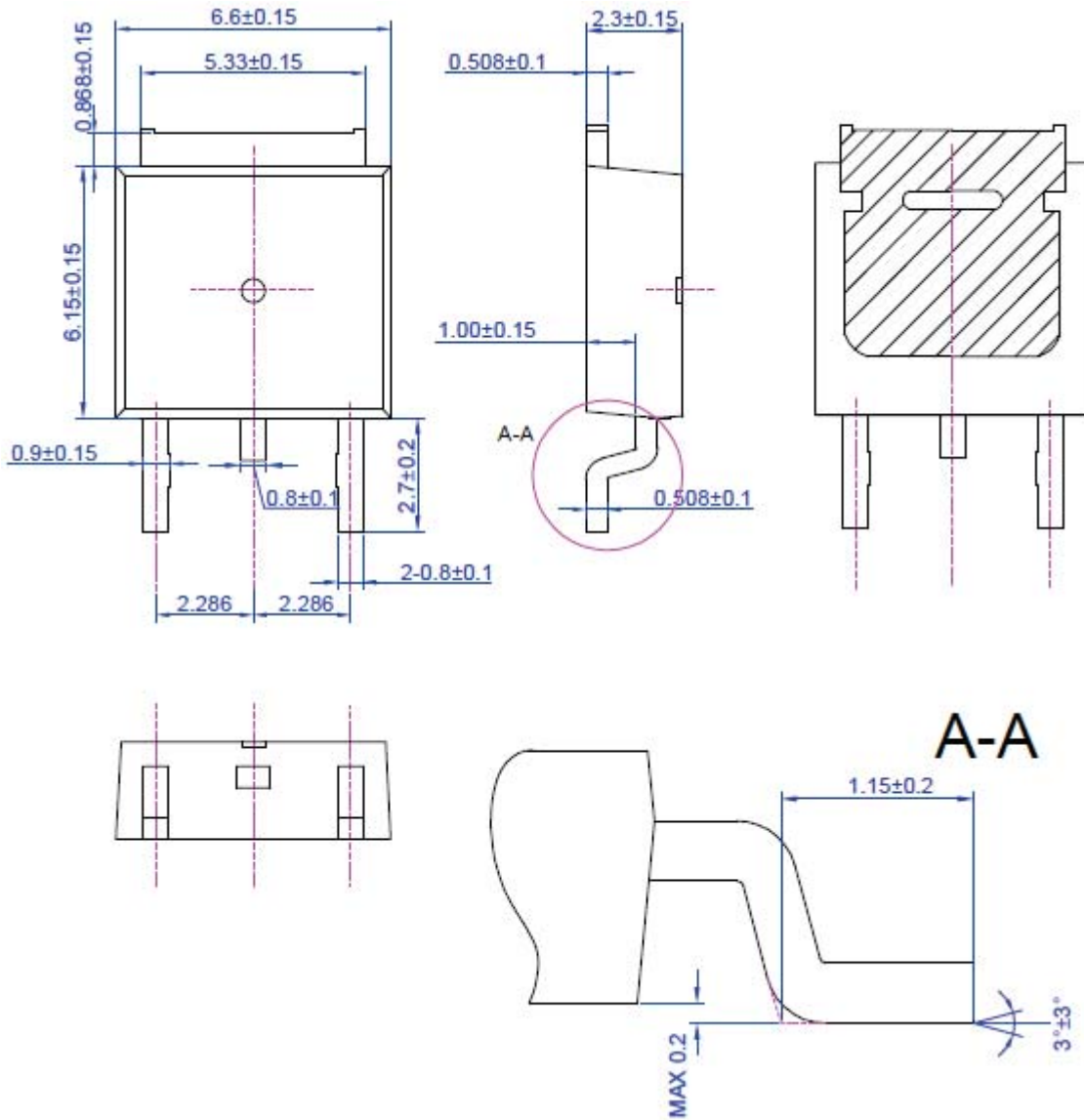


Diode Recovery Test Circuit & Waveforms



Package Information

TO-252



Package Information

TO-220 (B)

