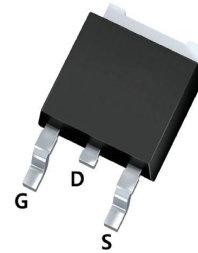




1.Features

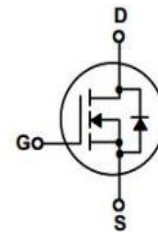
- V_{DS} 650V
- I_D 8A
- $R_{DS(on)}$ @ $V_{GS}=10V$ 420mΩ

TO-252



2.Mechanical Data

- Case:Molded Plastic,TO-252;
- Epoxy:UL 94V-0 rate flame retardant
- Terminals:Plated Leads Solderable per MIL-STD-750,Method-2026.
- Marking: marked on body.
- Mounting Position : Any.



1. Gate
2. Drain
3. Source

3.Maximum Ratings and Electrical Characteristics

Rating at 25°C Cambiant temperature unless otherwise specified

Characteristics		Symbol	Ratings	Unit
Drain-Source Voltage		V_{DS}	650	V
Drain Current Continuous	$T_C=25^{\circ}C$	I_D	8	A
	$T_C=100^{\circ}C$		5	
Drain Current Pulsed		I_{DM}	32	A
Gate-Source Voltage		V_{GS}	± 30	V
Power Dissipation $TC = 25^{\circ}C$		P_D	73	W
Single Pulsed Avalanche Energy		E_{AS}	65	mJ
Maximum Junction Temperature		T_J	-55 to +150	$^{\circ}C$
Storage Temperature Range		T_{stg}	-55 to +150	$^{\circ}C$
Thermal Resistance, Junction-to-Case		$R_{\theta JC}$	1.7	$^{\circ}C/W$
Thermal Resistance, Junction-to-Ambient		$R_{\theta JA}$	143	$^{\circ}C/W$



Characteristics	Symbol	Test conditions	Min	TYP	Max	Unit
Off Characteristics						
Drain -Source Breakdown Voltage	BV _{DSS}	V _{GS} = 0V,I _D =250μA	650	-	-	V
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} = 650V,V _{GS} = 0V	-	-	1	uA
Gate-Source Leakage Current	I _{GSS}	V _{GS} = 20V	-	-	100	nA
Gate-Source Leakage Current		V _{GS} = -20V	-	-	-100	nA
On Characteristics						
Gate Threshold Voltage	V _{GS (th)}	V _{DS} =V _{GS} , I _D =250uA	3.0	-	4.0	V
Drain-Source On-State Resistance	R _{DS(on)}	V _{GS} =10V, I _D =3A	-	420	550	mΩ
Dynamic Characteristics						
Input Capacitance	C _{iss}	V _{DS} =100V V _{GS} =0V f=1.0MHZ	-	472	-	pF
Output Capacitance	C _{oss}		-	25	-	
Reverse Transfer Capacitance	C _{rss}		-	0.47	-	
Switching Characteristics						
Turn-on Delay Time	t _{d(on)}	V _{DS} =400V, V _{GS} =10V R _G =27Ω;T _j =25°C	-	16	-	ns
Turn-on Rise Time	t _r		-	18	-	
Turn-off Delay Time	t _{d(off)}		-	79	-	
Turn-off Fail Time	t _f		-	17	-	
Total Gate Charge	Q _g	V _{DS} =480V, V _{GS} =10A I _D =4A	-	15.6	-	nC
Gate-Source Charge	Q _{gs}		-	3.1	-	
Gate-Drain Charge	Q _{gd}		-	6.5	-	
Drain-Source Diode Characteristics						
Diode Forward Voltage	V _{SD}	I _{SD} =4A,V _{GS} =0V	-	0.83	1.2	V
Reverse Recovery Time	T _{rr}	I _{SD} =4A, V _{DS} =100V	-	211	-	ns
Reverse Recovery Charge	Q _{rr}	dI/dt=100A/μS	-	1.76	-	nC



4. Rating And Characteristic Curves

Fig.1 Output Characteristics ($T_j=25^{\circ}\text{C}$)

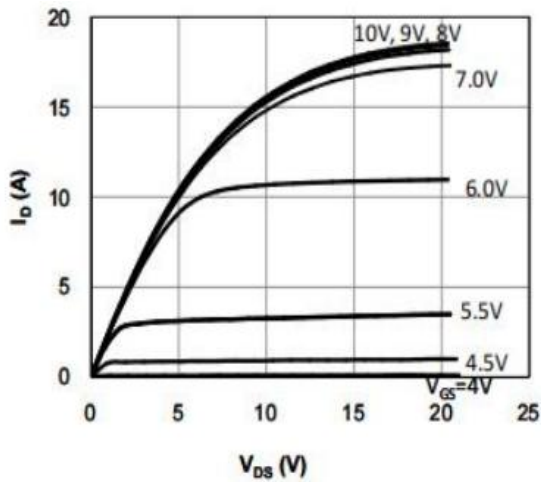


Fig.2 Output Characteristics ($T_j=150^{\circ}\text{C}$)

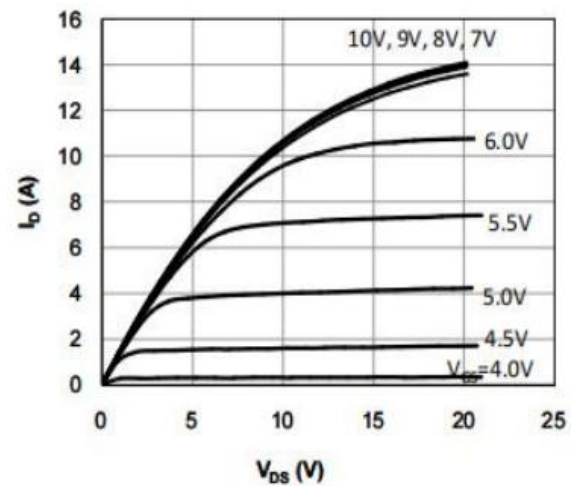


Fig.3 Transfer Characteristics

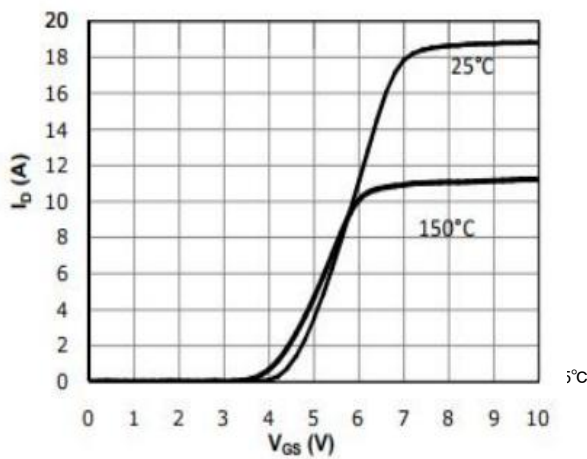


Fig 4 V_{TH} vs. T_j Temperature Characteristics

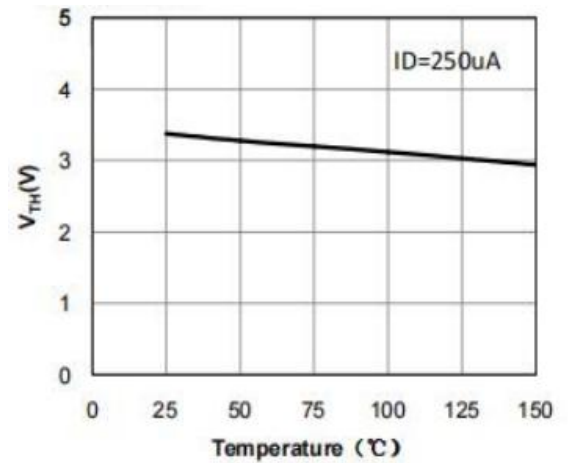


Fig.5 $R_{DS(on)}$ vs. I_{DS} Characteristics ($T_j=25^{\circ}\text{C}$)

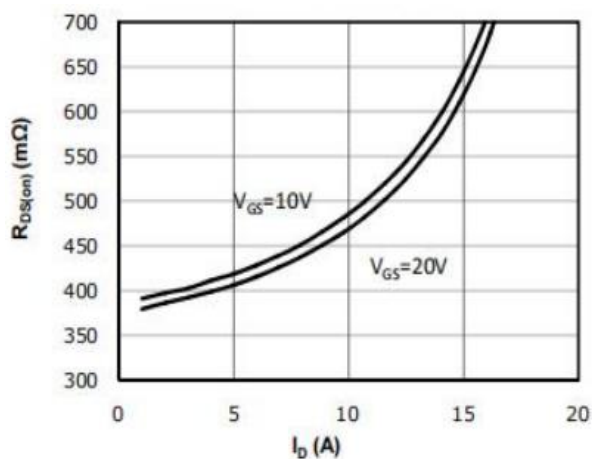


Fig.6 $R_{DS(on)}$ vs. Temperature

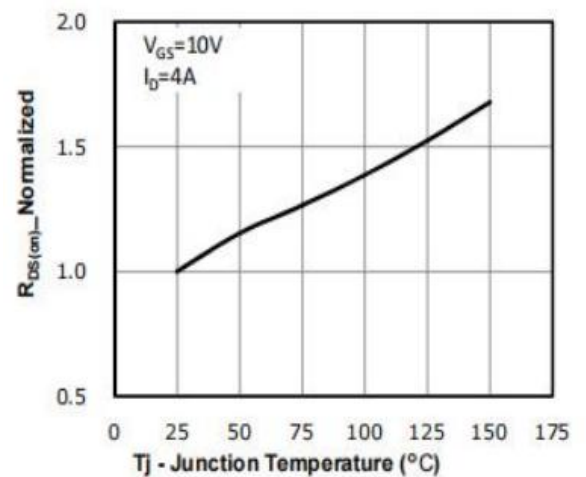




Fig.7 $B_{V_{DS}}$ with Temperature

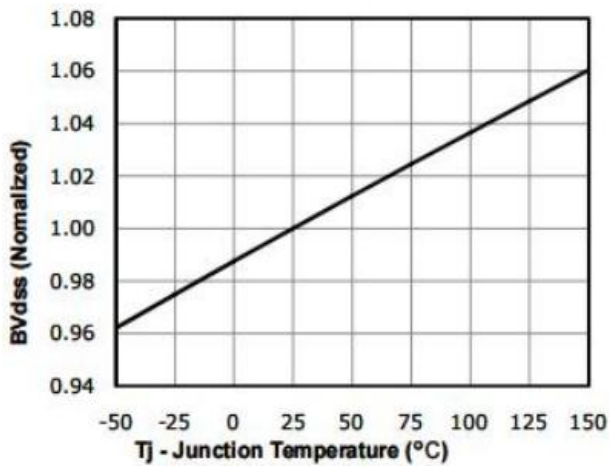


Fig.8 $R_{DS(on)}$ vs. Gate Voltage

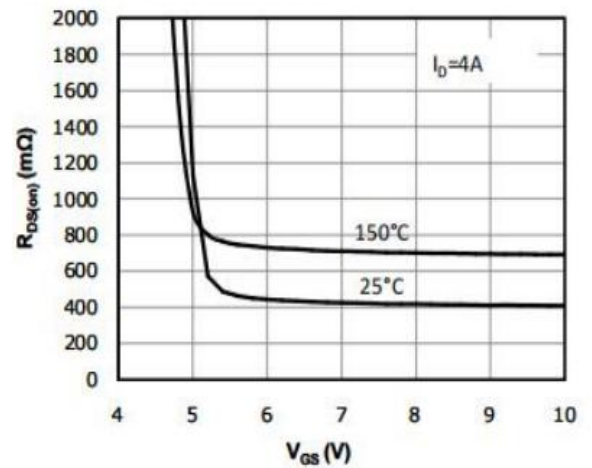


Fig.9 Body-diode Forward Characteristics

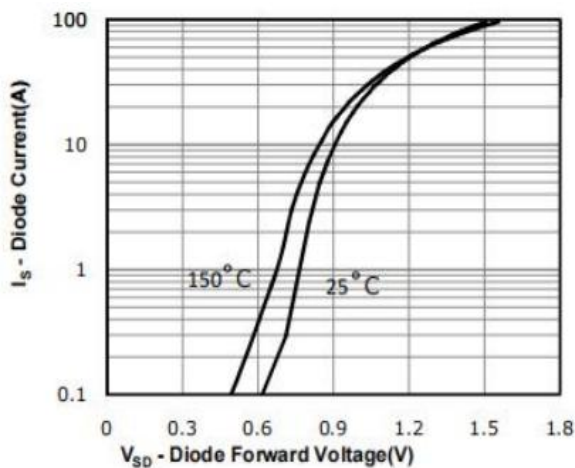


Fig.10 Gate Charge Characteristics

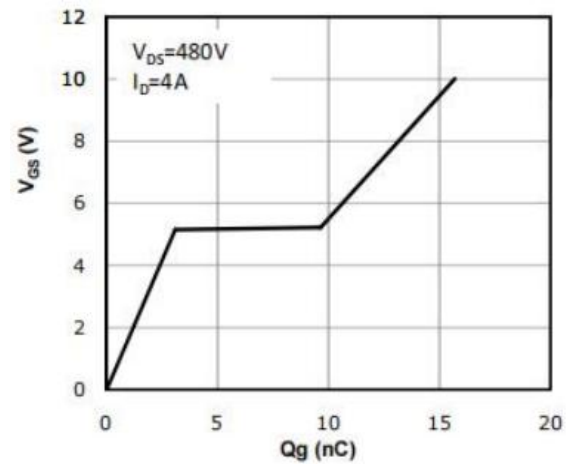


Fig.11 Capacitance Characteristics

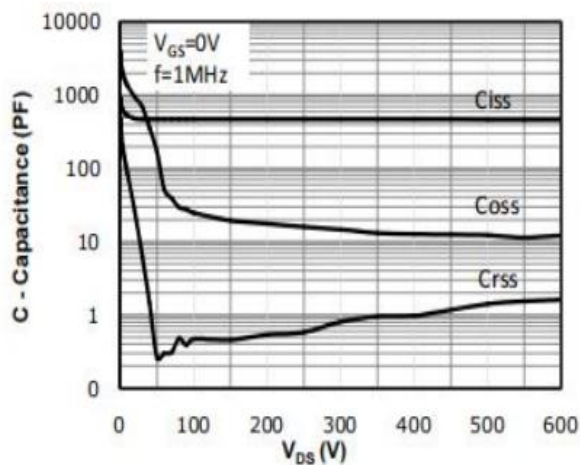


Fig.12 Safe Operating Area

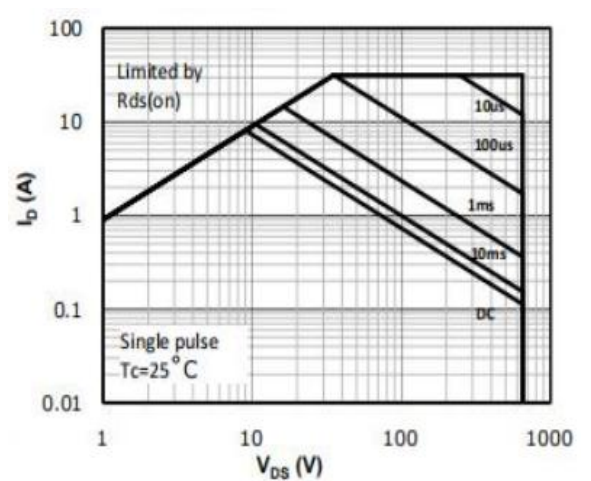
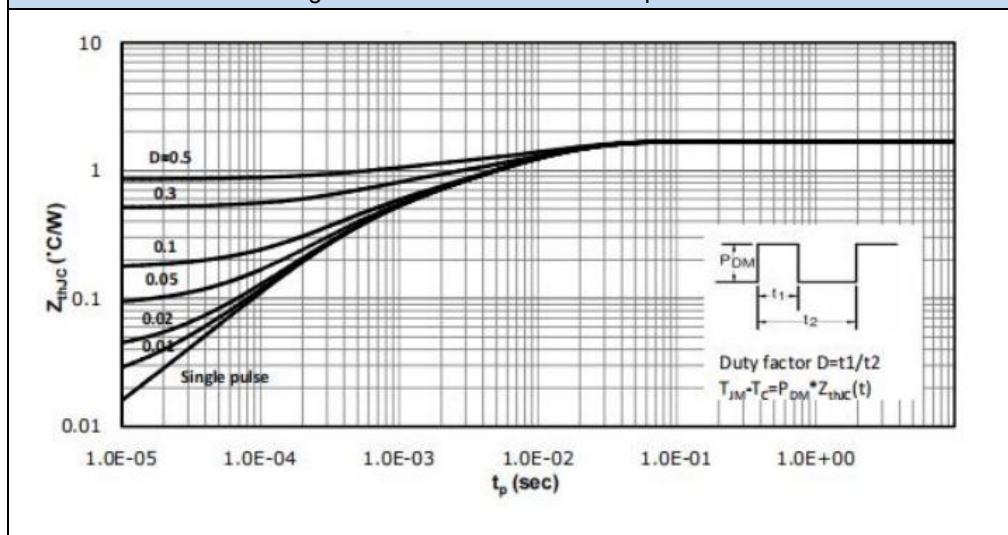


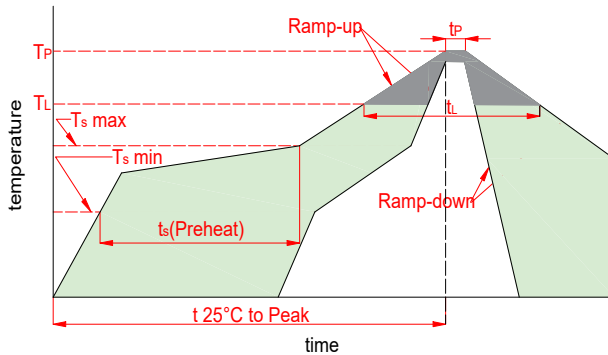


Fig.13 Max.Transient Thermal Impedance



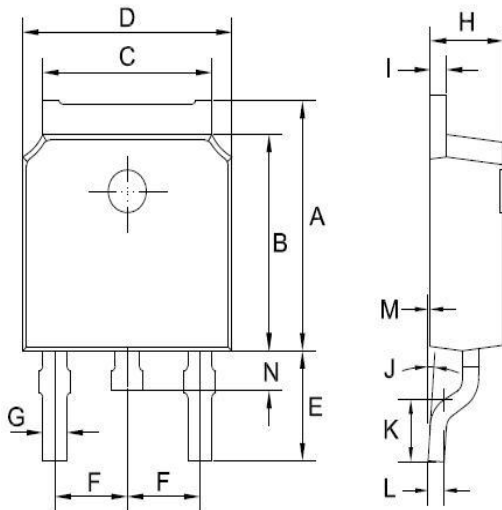


5. Soldering Parameters



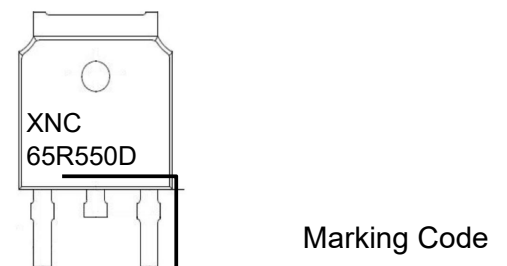
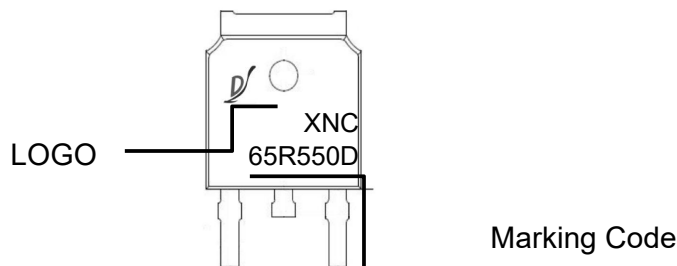
Reflow Condition		Lead-free
Pre Heat	Temp. min(T_s (min))	150℃
	Temp. max(T_s (min))	200℃
	Time(min to max)(t_s)	60~180s
Aver. ramp up rate(Liquidus Temp.)(T_L)to peak		3℃/s max
T_s (max) to T_L -Ramp-up Rate		3℃/s max
Reflow	Temp.(T_L)(Liquidus)	217℃
	Temp.(t_L)(Liquidus)	60~150s
Peak Temp.(T_P)		260 ^{+0/-5} ℃
Time within actual peak Temp.(t_p)		30s max
Ramp-down Rate		6℃/s max
Time 25℃ to peak Tempe.(T_P)		8 minutes max
Do not exceed		260℃

6.Dimensions



Dimensions	Inches		Millimeters	
	Min	Max	Min	Max
A	0.264	0.291	6.70	7.40
B	0.224	0.248	5.70	6.30
C	0.201	0.217	5.10	5.50
D	0.248	0.272	6.30	6.90
E	0.106	0.122	2.70	3.10
F	0.082	0.098	2.09	2.49
G	0.024	0.035	0.60	0.90
H	0.083	0.098	2.10	2.50
I	0.012	0.028	0.30	0.70
K	0.057	0.073	1.45	1.85
L	0.012	0.024	0.30	0.60
N	0.016	0.039	0.40	1.00

7. Part Marking System



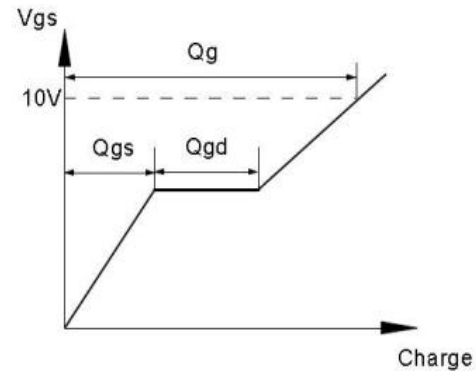
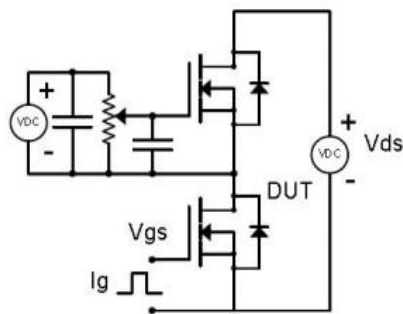
8. Package Information

Package	Quantity(pcs)
TO-252	2500

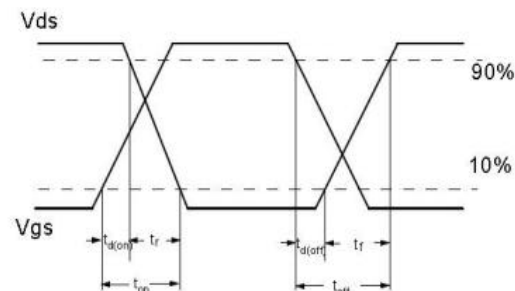
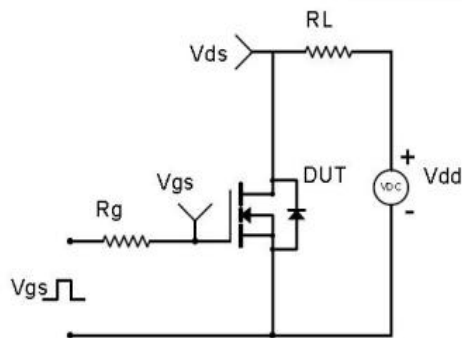


9. Test circuits

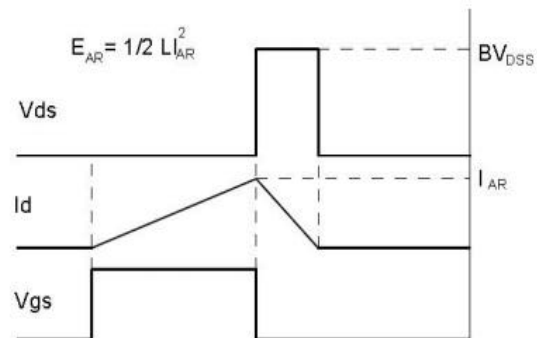
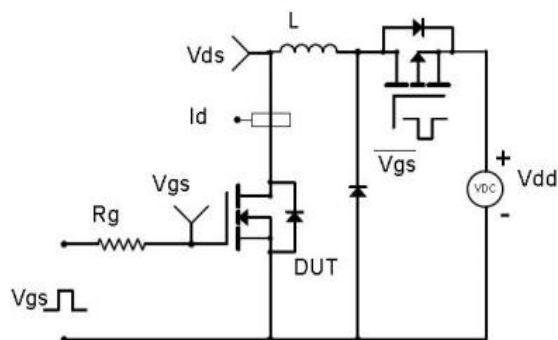
Gate Charge Test Circuit & Waveform



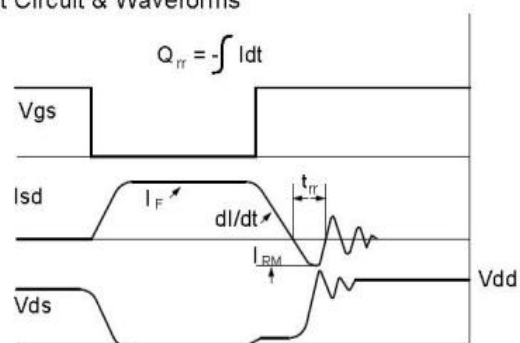
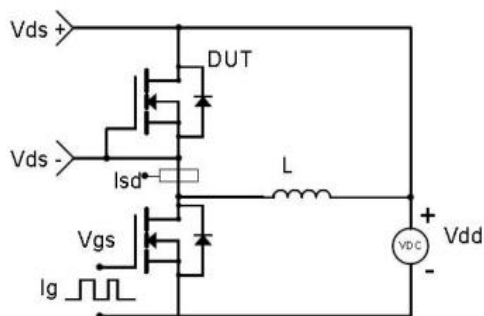
Resistive Switching Test Circuit & Waveforms



Unclamped Inductive Switching (UIS) Test Circuit & Waveforms



Diode Recovery Test Circuit & Waveforms





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