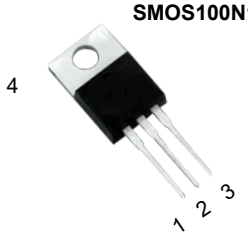
SMOS100N10A2 SMOS100N10A6

N Channel Power MOSFET

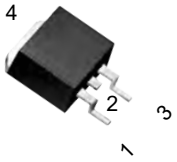
SMOS100N10A2



TO-220AB

1, Gate
2, Drain
3, Source
4, Drain Fin

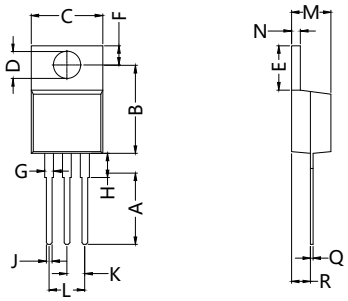
SMOS100N10A6



TO-263(D^2PAK)

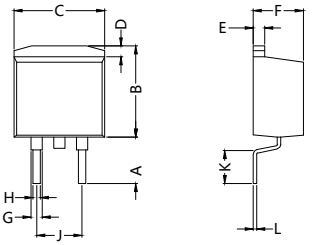
1, Gate
2, Drain
3, Source
4, Drain Fin

Dimensions TO-220AB

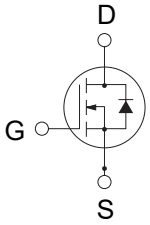


Dim.	Millimeter	
	Min.	Max.
A	12.70	13.97
B	14.73	16.00
C	9.91	10.66
ØD	3.54	4.08
E	5.85	6.85
F	2.54	3.18
G	1.15	1.65
H	2.79	5.84
J	0.64	1.01
K	2.45BSC	
L	5.05BSC	
M	4.32	4.82
N	1.14	1.39
Q	0.35	0.56
R	2.29	2.79

Dimensions TO-263 (D^2PAK)



Dim.	Millimeter		Inches	
	Min.	Max.	Min.	Max.
A	5.00	5.60	0.197	0.220
B	9.32	10.52	0.367	0.414
C	9.60	10.40	0.378	0.409
D	1.10	1.40	0.043	0.055
E	1.20	1.50	0.047	0.059
F	4.32	4.82	0.170	0.190
G	1.15	1.65	0.045	0.065
H	0.64	1.00	0.025	0.039
J	4.80	5.20	0.189	0.205
K	2.80	3.90	0.110	0.154
L	0.30	0.45	0.012	0.018



G=Gate, D=Drain, S=Source

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

Parameter		Symbol	Limit	Unit
Drain-Source Voltage		V_{DS}	100	V
Gate-Source Voltage		V_{GS}	±20	V
Drain Current-Continuous(T_C=25°C		I_{D25}	100	A
Drain Current-Continuous(T_C=100°C)		I_{D100}	90	A
Pulsed Drain Current		I_{DM}	400	A
Maximum Power Dissipation	TO-220	P_D	140	W
	TO-263	P_D	128	W
Single pulse avalanche energy (Note 5)		E_{AS}	190	mJ
Operating Junction and Storage Temperature Range		T_J,T_{STG}	-55 To 150	°C

Thermal Characteristic

Thermal Resistance,Junction-to-Case (TO-220AB)	$R_{\theta JC}$	0.88	°C/W
Thermal Resistance,Junction-to-Case (TO-263)	$R_{\theta JC}$	0.92	°C/W

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SMOS100N10A2 SMOS100N10A6

N Channel Power MOSFET

Electrical Characteristics

(T_J=25°C, unless otherwise specified)

Parameter	Symbol	Condition	Min	Typ	Max	Unit
Off Characteristics						
Drain-Source Breakdown Voltage	BV_{DSS}	V_{SG} =0V I_D=250μA	100	-	-	V
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}=100V,V_{GS}=0V	-	-	1	μA
Gate-Body Leakage Current	I_{GSS}	V_{GS}=±20V,V_{DS}=0V	-	-	±100	nA
On Characteristics (Note 3)						
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS}=V_{GS},I_D=250μA	2	3	4	V
Drain-Source On-State Resistance	$R_{DS(ON)}$	V_{DS}=10V, I_D= 20A	-	6.6	8.0	mΩ
Forward Transconductance	g_{FS}	V_{DS}=5V, I_D=50A	-	115.0	-	S
Dynamic Characteristics (Note4)						
Input Capacitance	C_{lss}	V_{DS}=25V,V_{GS}=0V, F=1.0MHz	-	3130	-	PF
Output Capacitance	C_{oss}		-	525	-	PF
Reverse Transfer Capacitance	C_{rss}		-	10	-	PF
Switching Characteristics (Note 4)						
Turn-on Delay Time	$t_{d(on)}$	V_{DD}=50V, I_D =50A V_{GS}=10V,R_G= 2.7Ω	-	18	-	nS
Turn-on Rise Time	t_r		-	9.9	-	nS
Turn-Off Delay Time	$t_{d(off)}$		-	63	-	nS
Turn-Off Fall Time	t_f		-	44	-	nS
Total Gate Charge	Q_g	V_{DD}=50V,I_D=50A, V_{GS}=10V , f=1MHz	-	45	-	nC
Gate-Source Charge	Q_{gs}		-	8.2	-	nC
Gate-Drain Charge	Q_{gd}		-	11	-	nC
Drain-Source Diode Characteristics						
Diode Forward Voltage (Note 3)	V_{SD}	V_{GS}=0V, I_S=30A	-	0.80	1.3	V
Diode Forward Current (Note 2)	I_S		-	-	100	A
Reverse Recovery Time	t_{rr}	T_J = 25°C, I_F =30A di/dt =100A/μs (Note3)	-	65	-	nS
Reverse Recovery Charge	Qrr			156	-	uC
Forward Turn-On Time	t_{on}	Intrinsic turn-on time is negligible (turn-on is dominated by LS+LD)				

Notes:

1. Repetitive Rating: Pulse width limited by maximum junction temperature.
2. Surface Mounted on FR4 Board, t ≤ 10 sec.
3. Pulse Test: Pulse Width ≤ 300μs, Duty Cycle ≤ 2%.
4. Guaranteed by design, not subject to production
5. EAS condition : Tj=25℃,VDD=30V,VG=10V,L=0.4mH,Rg=25Ω

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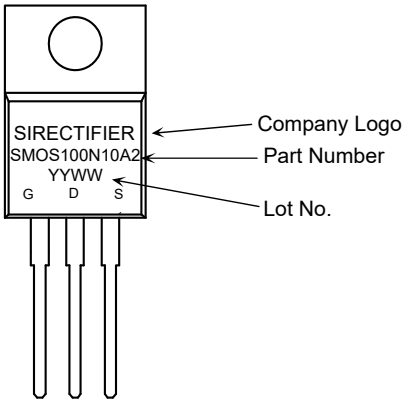
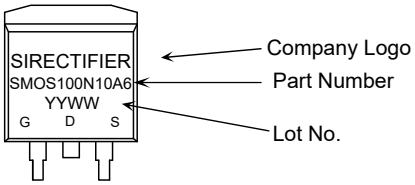
N Channel Power MOSFET

Marking

SMOS100N10A2
(TO-220AB)



SMOS100N10A6
(TO-263)



Ordering Information

Part Number	Package	Shipping	Marking Code
SMOS100N10A2	TO-220AB	50pcs / Tube	SMOS100N10A2
SMOS100N10A6	TO-263	50pcs / Tube or 1000pcs / Tape & Reel	SMOS100N10A6

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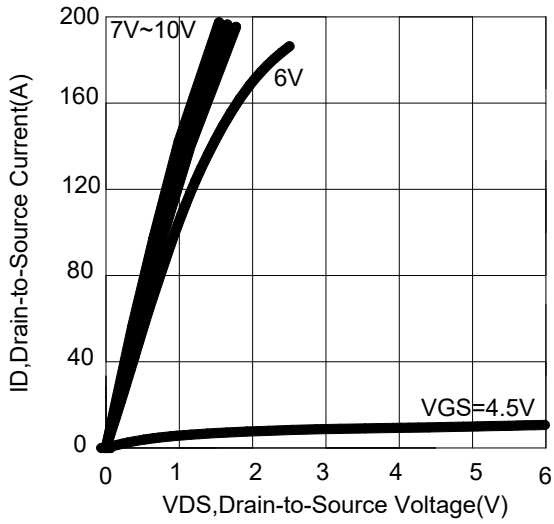
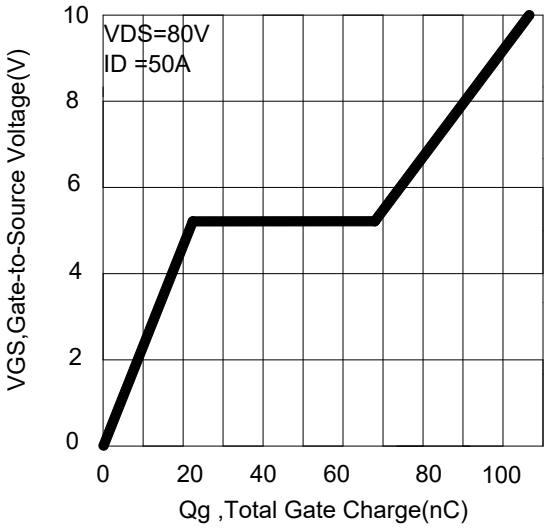
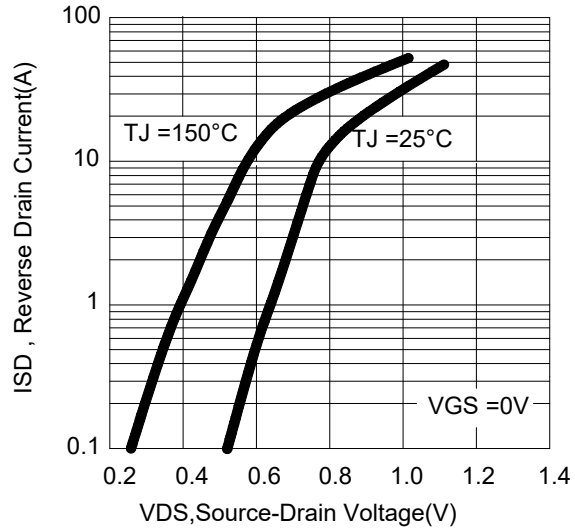
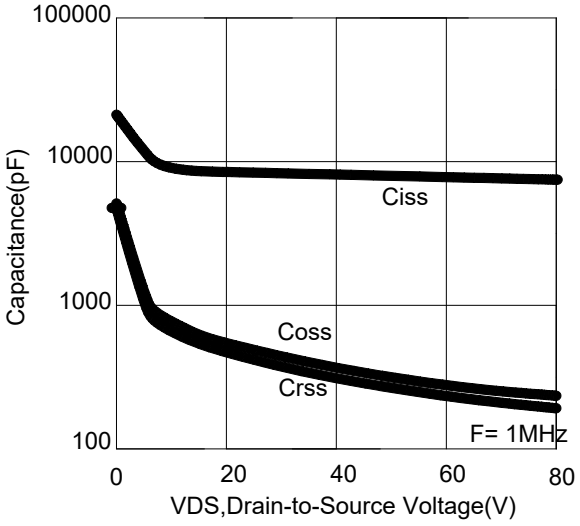
SMOS100N10A2 SMOS100N10A6

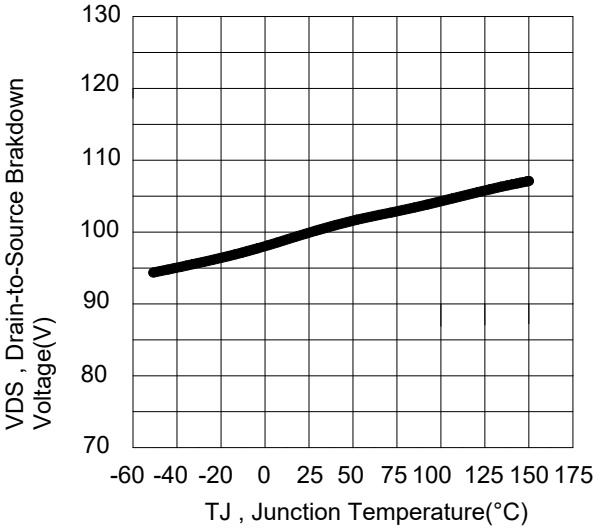
N Channel Power MOSFET

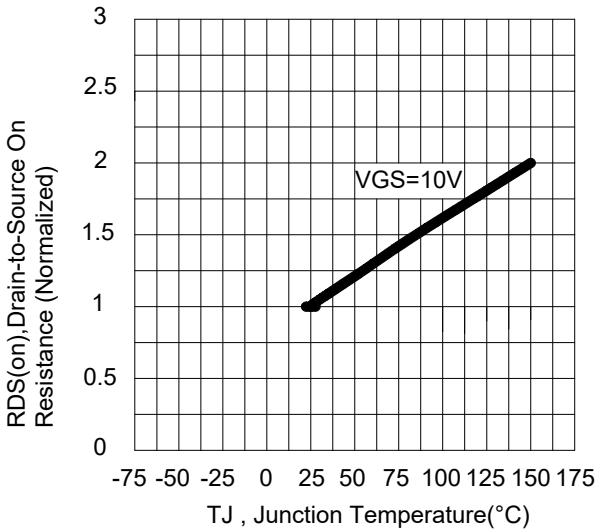












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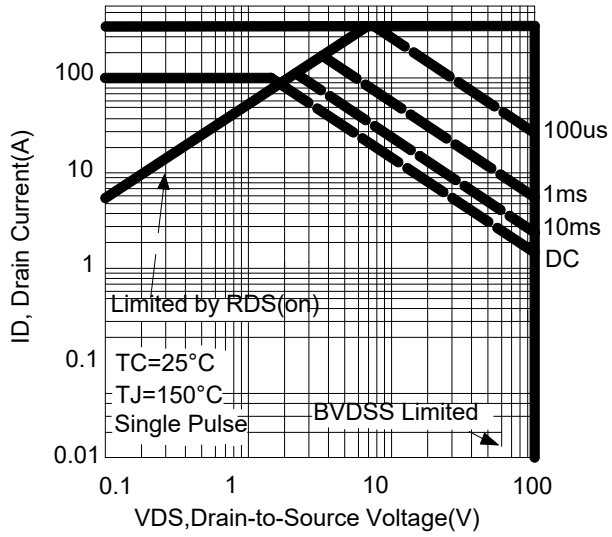

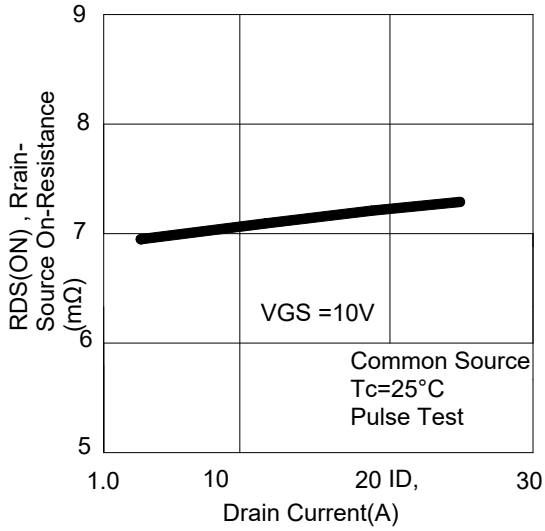

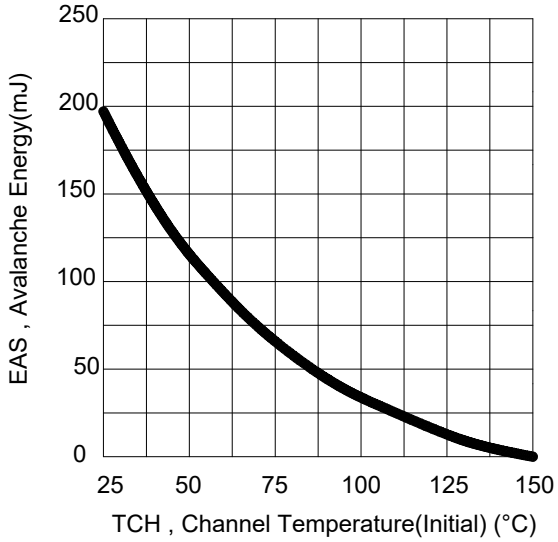

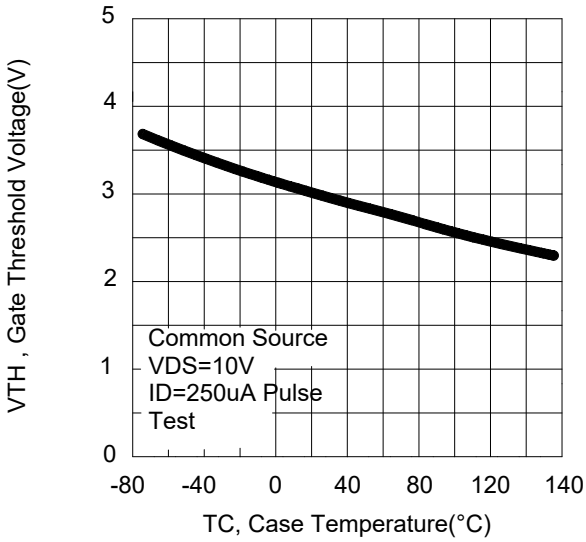

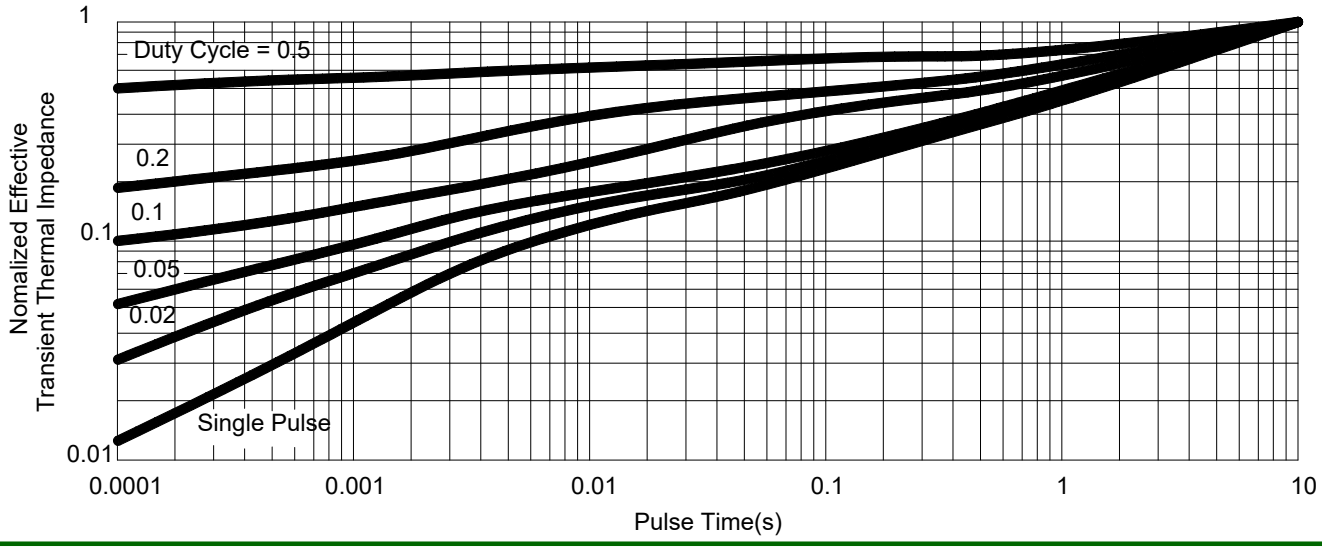

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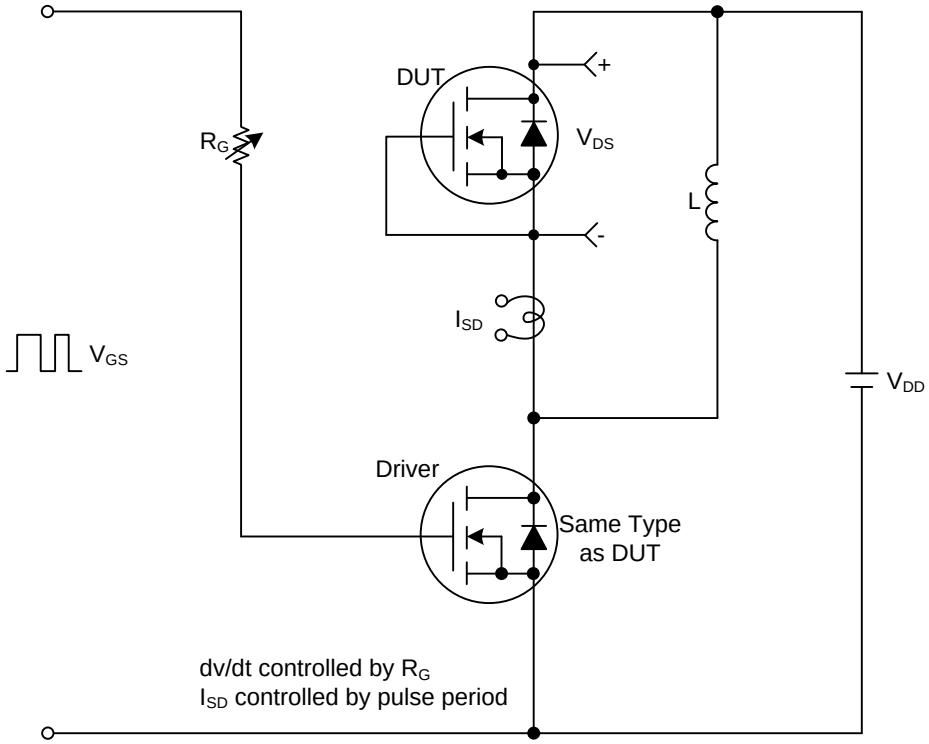
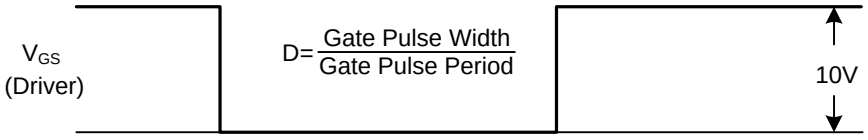
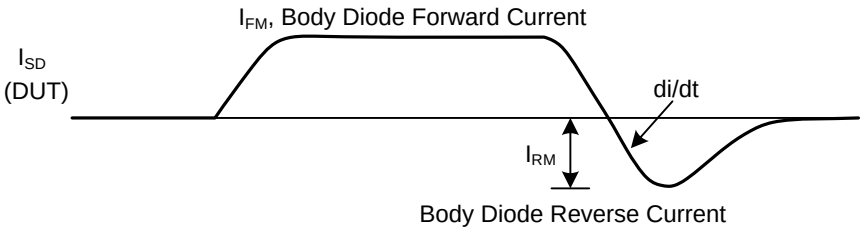
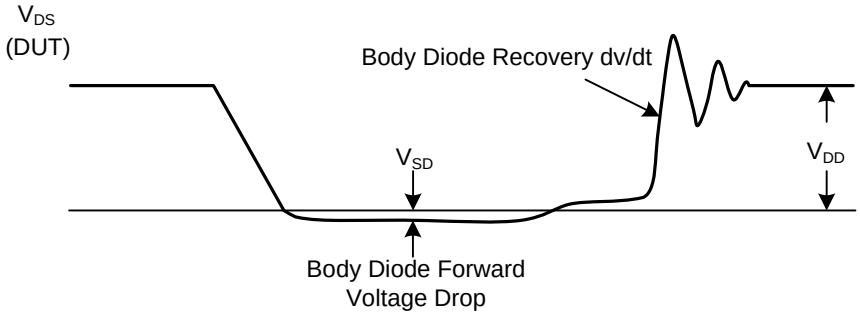
Peak Diode Recovery dv/dt Test Circuit & Waveforms









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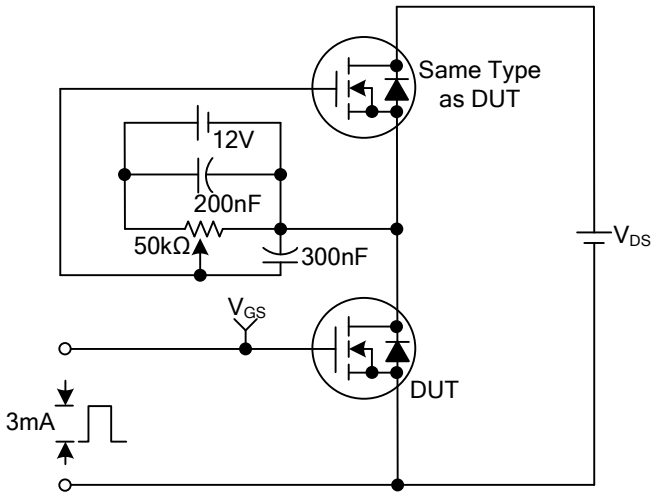
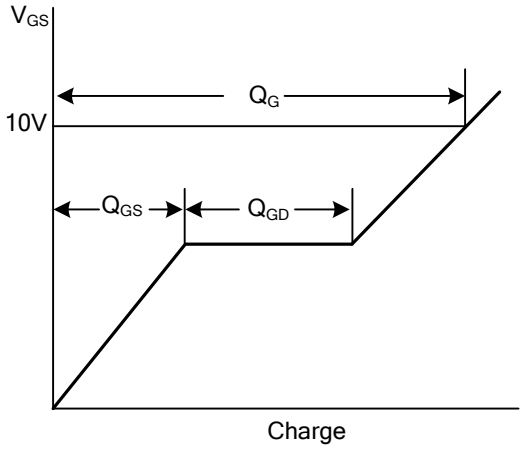
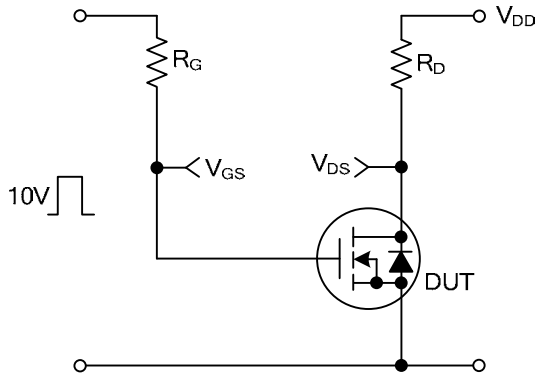
N Channel Power MOSFET



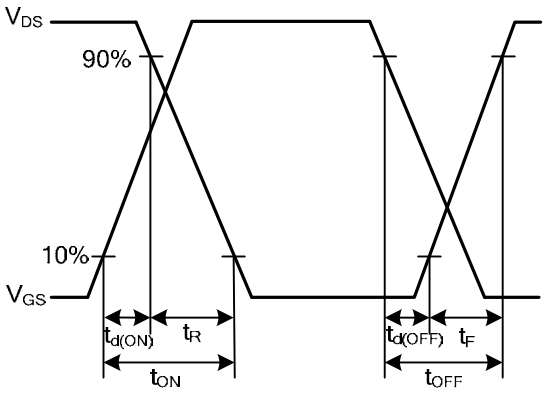
Gate Charge Test Circuit



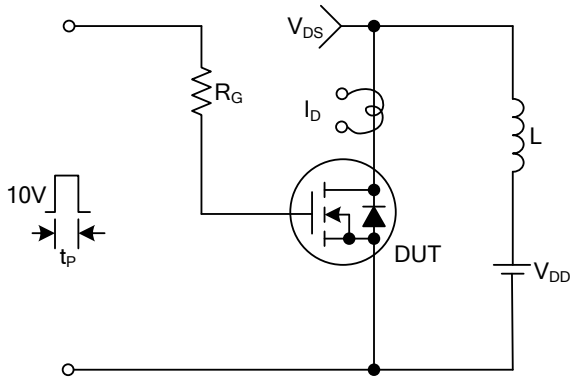
Gate Charge Waveforms



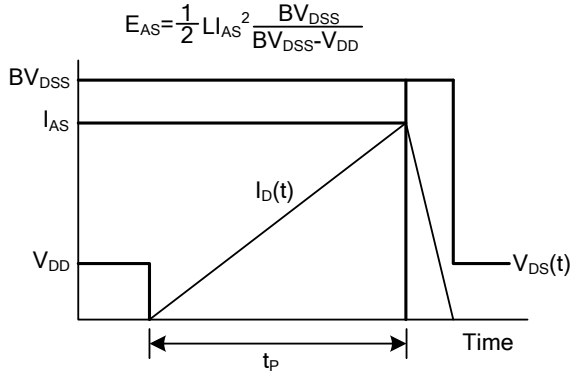
Resistive Switching Test Circuit



Resistive Switching Waveforms



Unclamped Inductive Switching Test Circuit



Unclamped Inductive Switching Waveforms

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