

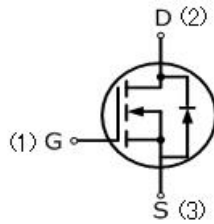
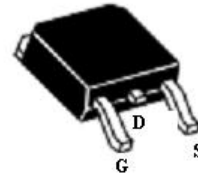


MOSFET

100 Volts N-CHANNEL Power MOSFET

FEATURE

- 7A,100V, $R_{DS(ON)MAX}=140m\Omega$ @ $V_{GS}=10V/5A$
- Low gate charge
- Low C_{iss}
- Fast switching
- 100% avalanche tested
- Improved dv/dt capability



TO-252(DPAK)

Absolute Maximum Ratings($T_C=25^{\circ}C$, unless otherwise noted)

Parameter	Symbol	8N10GR	UNIT
Drain-Source Voltage	V_{DSS}	100	V
Gate-Source Voltage	V_{GSS}	± 20	
Continuous Drain Current	I_D	7	A
Pulsed Drain Current(Note1)	I_{DM}	10	
Single Pulse Avalanche Energy (Note 2)	E_{AS}	0.5	mJ
Avalanche Current(Note1)	I_{AS}	3	A
Operating Junction and Storage Temperature Range	T_J, T_{STG}	-55 to +150	$^{\circ}C$
Maximum lead temperature for soldering purposes, 1/8" from case for 5 seconds	T_L	260	$^{\circ}C$

Thermal Characteristics

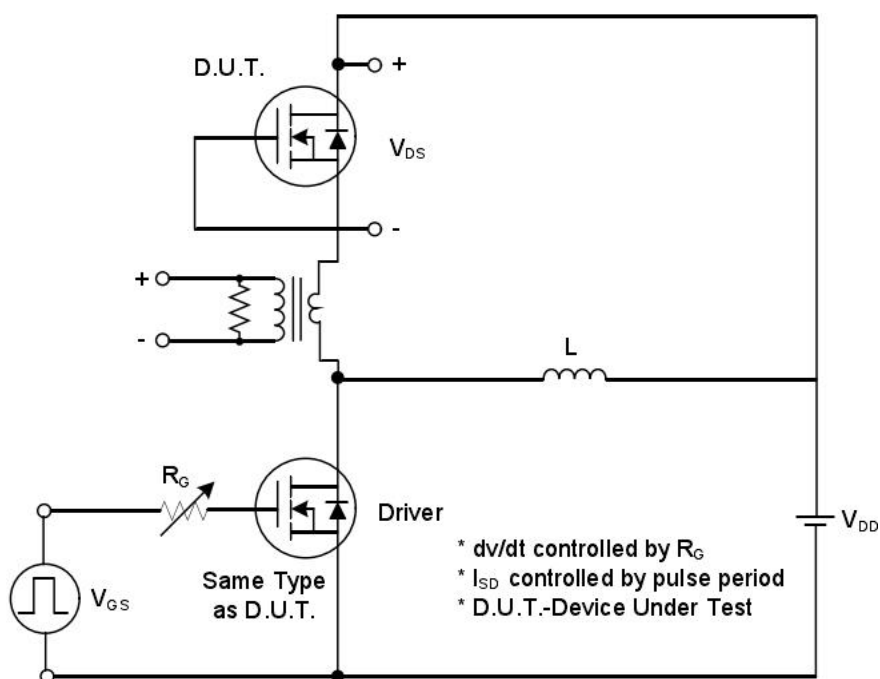
Parameter	Symbol	TO-252	Units
Maximum Junction-to-Case	$R_{th(ch-c)}$	8.8	$^{\circ}C/W$
Maximum Power Dissipation	P_D	17	W

Electrical Characteristics (T _c =25℃,unless otherwise noted)						
Parameter	Symbol	Test Conditions	Min	Typ	Max	Units
Off Characteristics						
Drain-Source Breakdown Voltage	BV _{DSS}	V _{GS} =0V,I _D =250uA	100	—	—	V
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} =100V,V _{GS} =0V	—	—	1	μ A
Gate-Body Leakage Current,Forward	I _{GSSF}	V _{GS} =20V,V _{DS} =0V	—	—	100	nA
Gate-Body Leakage Current,Reverse	I _{GSSR}	V _{GS} =-20V,V _{DS} =0V	—	—	-100	nA
On Characteristics						
Gate-Source Threshold Voltage	V _{GS(th)}	V _{DS} =V _{GS} ,I _D =250uA	1	—	3	V
Drain-Source On-State Resistance	R _{DS(on)}	V _{GS} =10V,I _D =5A	—	117	140	m Ω
		V _{GS} =4.5V,I _D =3A	—	140	176	
Dynamic Characteristics						
Input Capacitance	C _{iss}	V _{DS} =50V, V _{GS} =0V, f=1.0MHZ	—	250	—	pF
Output Capacitance	C _{oss}		—	19	—	pF
Reverse Transfer Capacitance	C _{rss}		—	2.5	—	pF
Switching Characteristics						
Turn-On Delay Time	t _{d(on)}	V _{DS} =50V, V _{GS} =10V, R _L =10Ω,R _{GEN} =3Ω (Note3,4)	—	11		ns
Turn-On Rise Time	t _r		—	7.4		ns
Turn-Off Delay Time	t _{d(off)}		—	35		ns
Turn-Off Fall Time	t _f		—	9.1		ns
Total Gate Charge	Q _g	V _{DS} =50V,I _D =5A, V _{GS} =10V, (Note3,4)	—	3.8	—	nC
Gate-Source Charge	Q _{gs}		—	0.8	—	nC
Gate-Drain Charge	Q _{gd}		—	0.8	—	nC
Drain-Source Body Diode Charcteristics and Maximum Ratings						
Diode Forward Voltage	V _{SD}	I _S =1A,V _{GS} =0V	—	—	1.1	V
Reverse Recovery Time	t _{rr}	IF=5A, dI/dt=500A/us, (Note3)	—	16	—	ns
Reverse Recovery Charge	Q _{rr}		—	52	—	nC

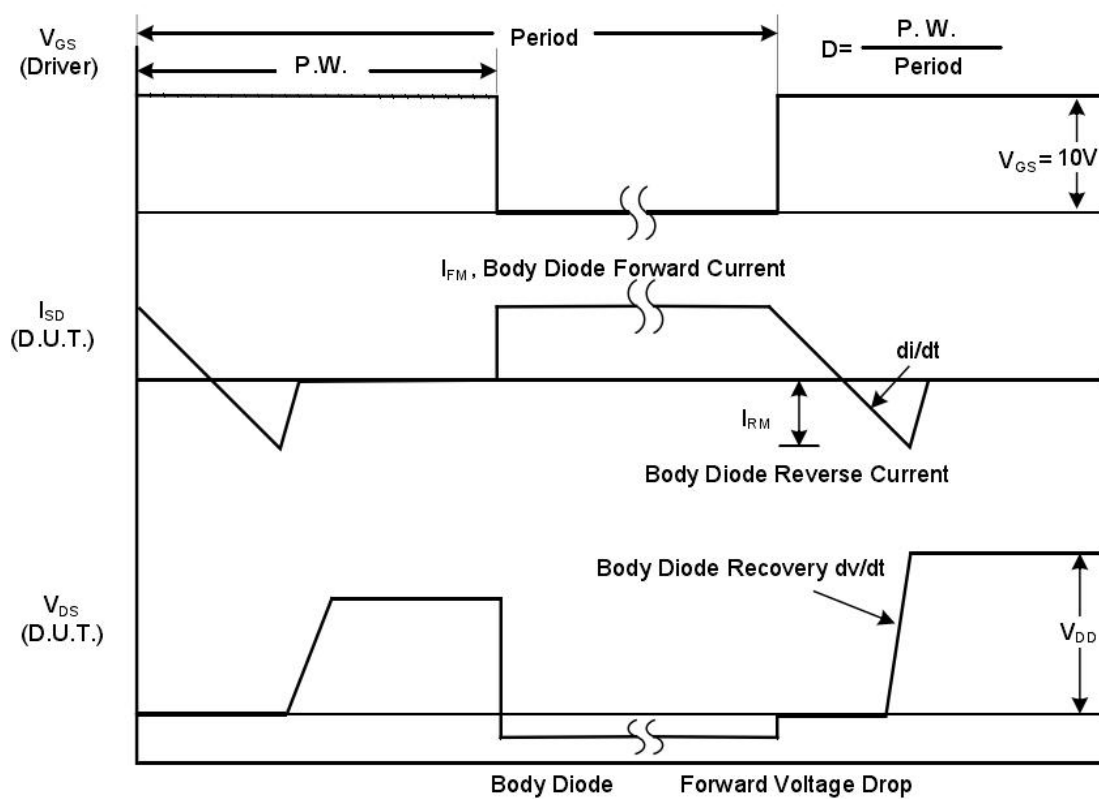
Notes

1. Repetitive Rating; pulse width limited by maximum junction temperature.
2. L=0.1mH, R_g=25Ω, starting T_J=25°C.
3. dI/dt=200A/us, starting T_J=25°C, Pulse width≤300us; duty cycle≤2%.
4. Repetitive rating; pulse width limited by maximum junction temperature.

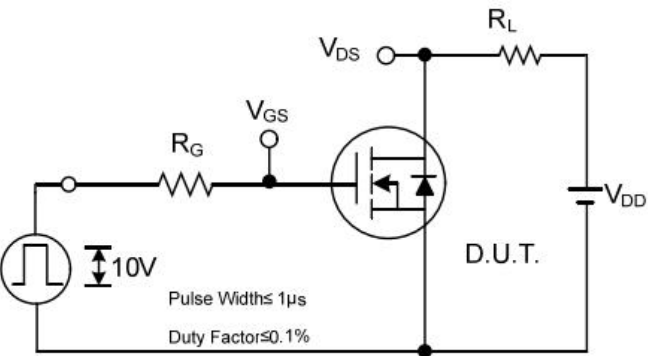
RATING AND CHARACTERISTIC CURVES



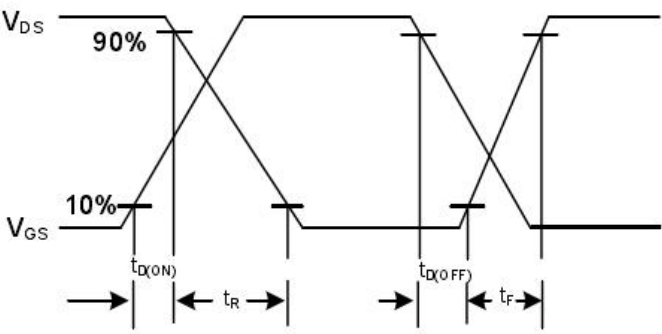
Peak Diode Recovery dv/dt Test Circuit



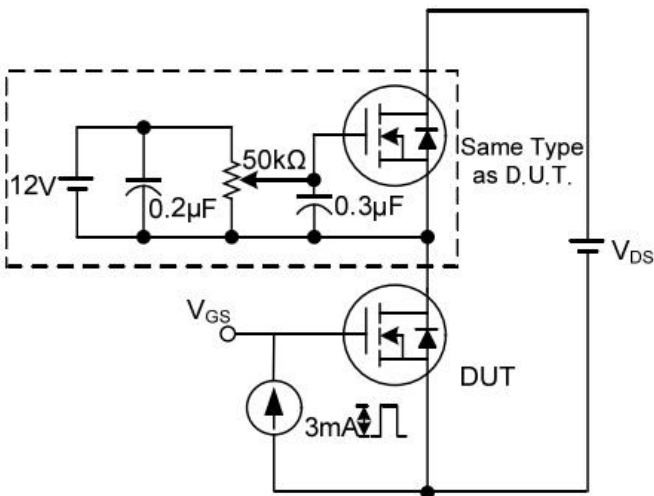
Peak Diode Recovery dv/dt Waveforms



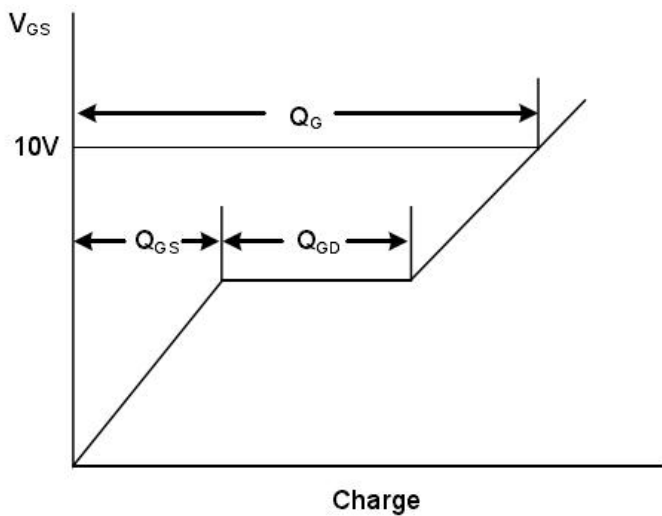
Switching Test Circuit



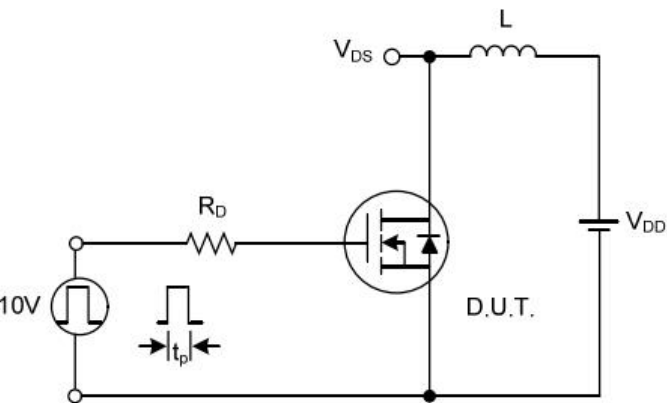
Switching Waveforms



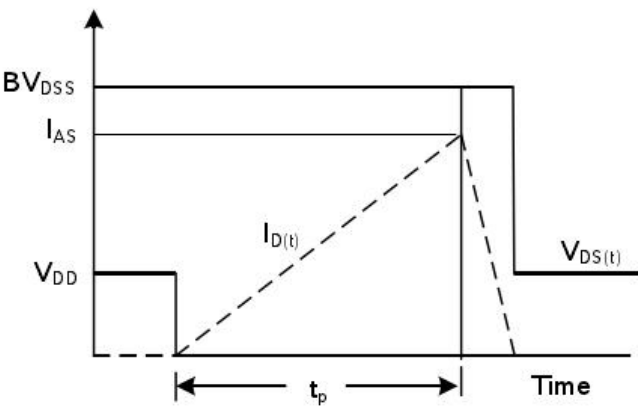
Gate Charge Test Circuit



Gate Charge Waveform

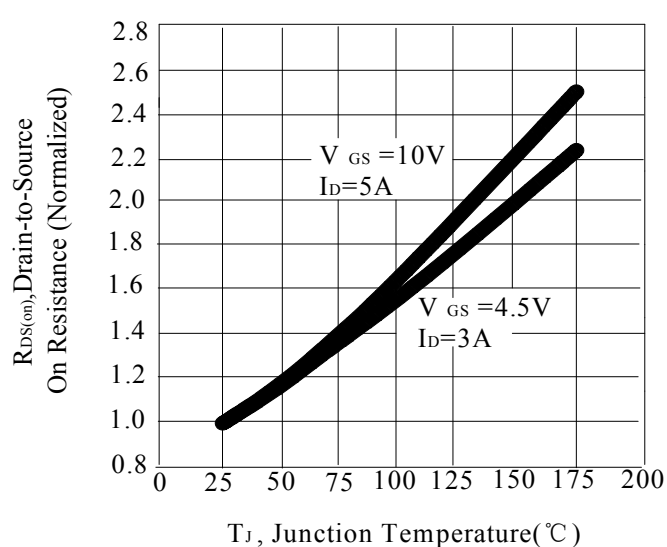
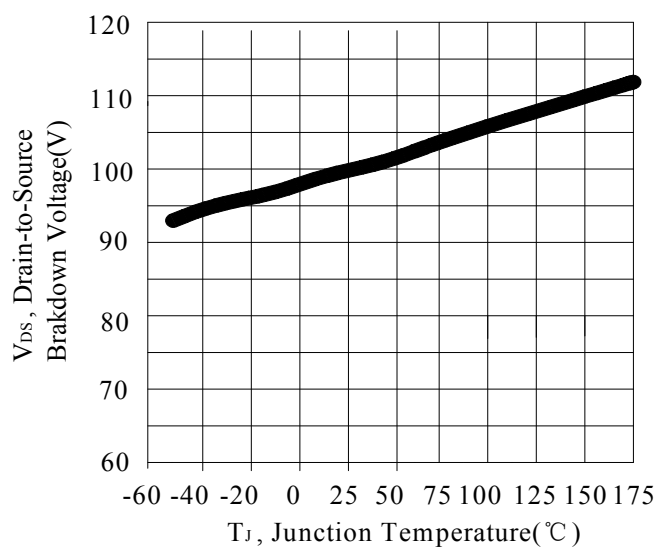
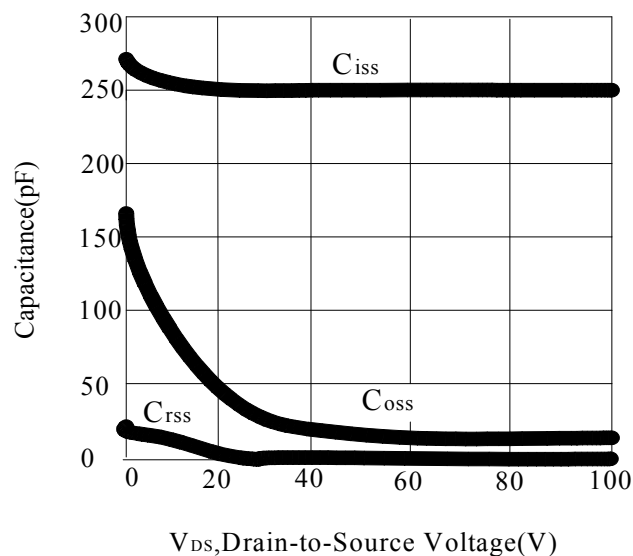
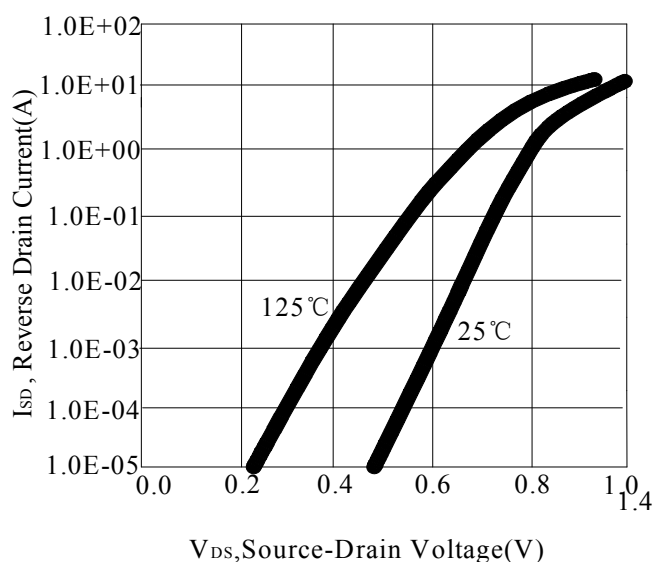
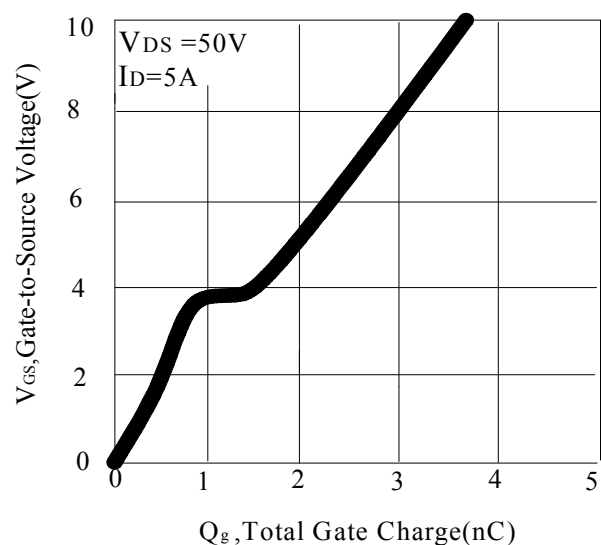
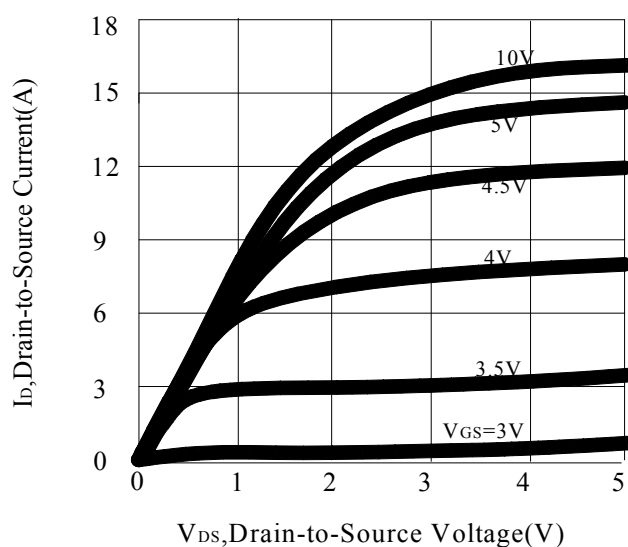


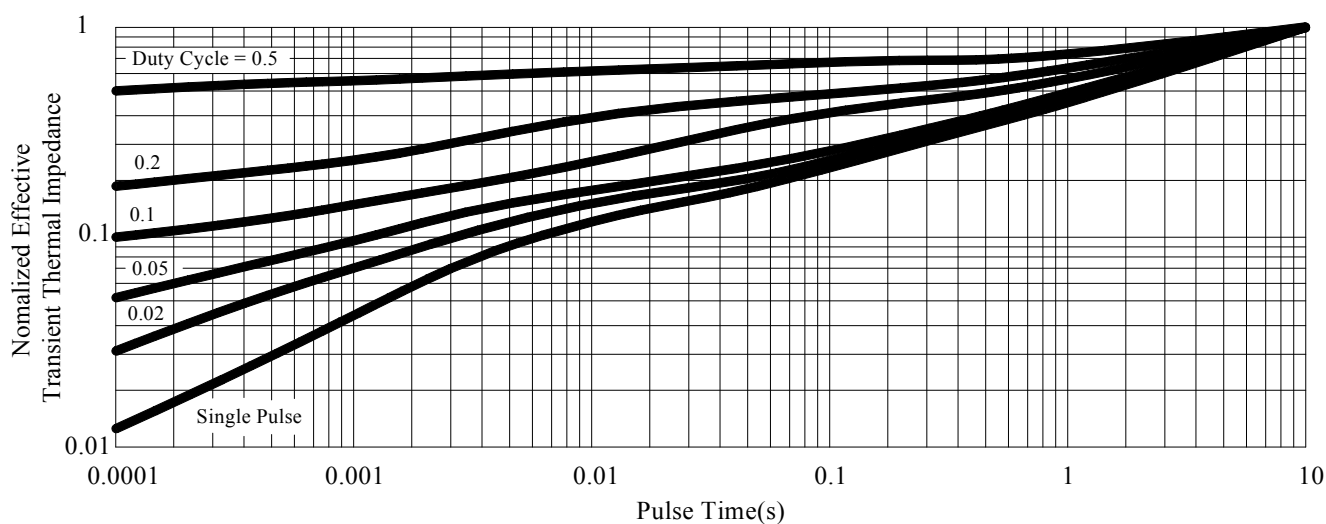
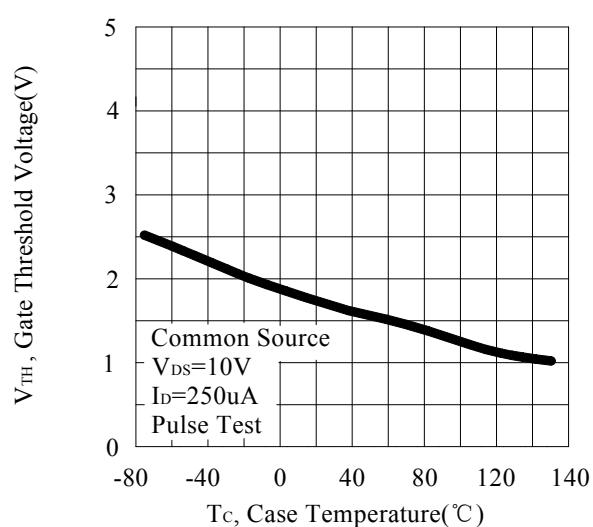
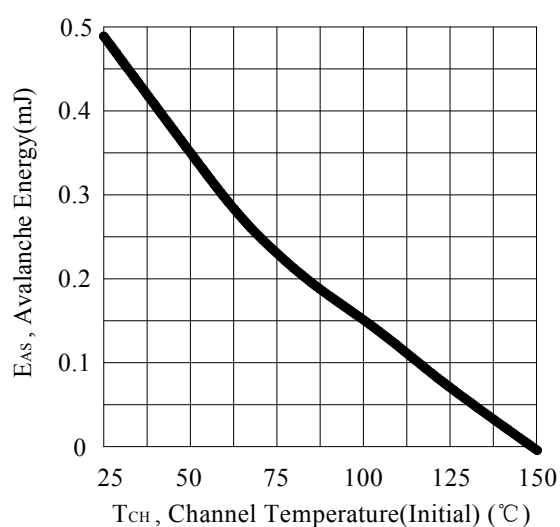
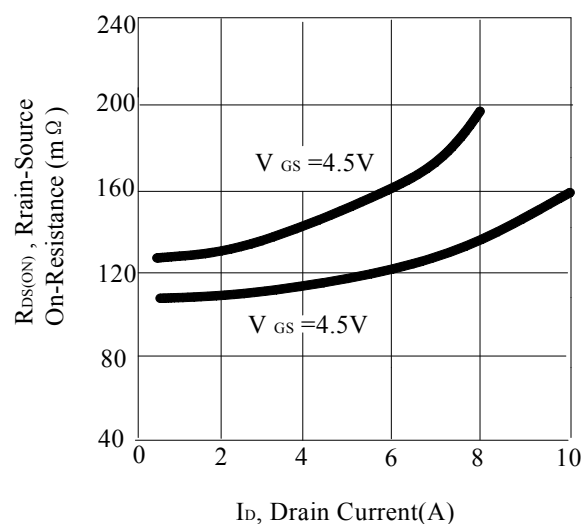
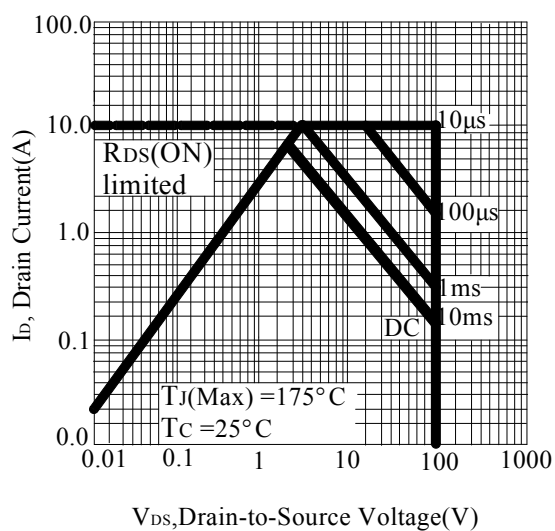
Unclamped Inductive Switching Test Circuit



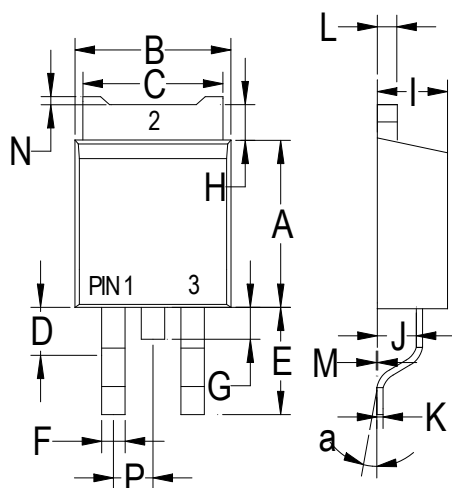
Unclamped Inductive Switching Waveforms

RATING AND CHARACTERISTIC CURVES





PACKAGE OUTLINE DIMENSIONS

TO-252

TO-252		
Dim	Min	Max
A	.230 (5.85)	.246 (6.25)
B	.250 (6.35)	.264 (6.75)
C	.207 (5.27)	.218 (5.54)
D	.037 (0.93)	.045 (1.14)
E	.106 (2.70)	.138 (3.50)
F	.028 (0.72)	.033 (0.84)
G	.024 (0.60)	.041 (1.05)
H	.028 (0.72)	.043 (1.10)
I	.085 (2.15)	.096 (2.45)
J	.037 (0.95)	.047 (1.20)
K	.018 (0.45)	.026 (0.65)
L	.018 (0.45)	.024 (0.60)
P	.081 (2.05)	.094 (2.40)
M	.000 (0.00)	.006 (0.15)
N	--	.008 (0.20)
a	0°	10°

Dimensions in inches and (millimeters)