

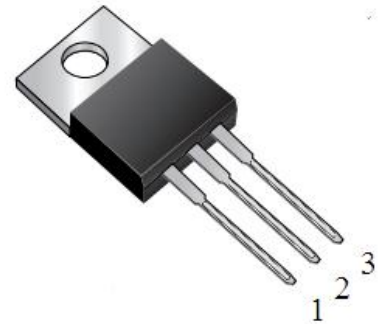
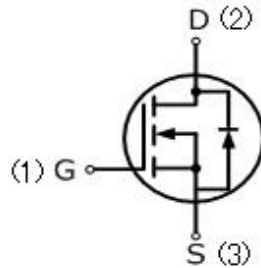
CURRENT 100 Ampere
 VOLTAGE RANG 100 Volts

100N10

FEATURE

- 100A,100V, $R_{DS(ON)MAX}=8.8m\Omega$, $V_{GS}=10V/20A$
- Low gate charge
- Low C_{iss}
- Fast switching
- 100% avalanche tested
- Improved dv/dt capability

TO-220AB



Absolute Maximum Ratings($T_C=25^\circ C$, unless otherwise noted)			
Parameter	Symbol	100N10	UNIT
Drain-Source Voltage	V_{DSS}	100	V
Gate-Source Voltage	V_{GSS}	± 20	
Continuous Drain Current	I_D	100	A
Pulsed Drain Current(Note1)	I_{DM}	390	
Single Pulse Avalanche Energy (Note 2)	E_{AS}	196	mJ
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	MAX	Units
Thermal resistance , Channel to Case	$R_{th(ch-c)}$	0.75	$^\circ C/W$
Maximum Power Dissipation	P_D	166	W

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Electrical Characteristics ($T_c=25^\circ\text{C}$, unless otherwise noted)						
Parameter	Symbol	Test Conditions	Min	Typ	Max	Units
Off Characteristics						
Drain-Source Breakdown Voltage	BV_{DSS}	$V_{GS}=0V, I_D=250\mu A$	100	—	—	V
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS}=100V, V_{GS}=0V$	—	—	1	μA
Gate-Body Leakage Current, Forward	I_{GSS}	$V_{GS}=\pm 20V, V_{DS}=0V$	—	—	± 100	nA
On Characteristics						
Gate-Source Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=250\mu A$	2	—	4	V
Drain-Source On-State Resistance	$R_{DS(on)}$	$V_{GS}=10V, I_D=20A$	—	7.2	8.8	$m\Omega$
Dynamic Characteristics						
Input Capacitance	C_{iss}	$V_{DS}=50V, V_{GS}=0V,$ $f=1.0\text{MHZ}$	—	8260	—	pF
Output Capacitance	C_{oss}		—	373	—	pF
Reverse Transfer Capacitance	C_{rss}		—	306	—	pF
Switching Characteristics						
Turn-On Delay Time	$t_{d(on)}$	$V_{DS}=50V,$ $I_D=50A,$ $R_g=3\Omega,$ $V_{GS}=10V$ (Note3,4)	—	27	—	ns
Turn-On Rise Time	t_r		—	56	—	ns
Turn-Off Delay Time	$t_{d(off)}$		—	75	—	ns
Turn-Off Fall Time	t_f		—	34	—	ns
Total Gate Charge	Q_g	$V_{DS}=80V, I_D=50A,$ $V_{GS}=10V,$ (Note3,4)	—	106	—	nC
Gate-Source Charge	Q_{gs}		—	23	—	nC
Gate-Drain Charge	Q_{gd}		—	45	—	nC
Drain-Source Body Diode Characteristics and Maximum Ratings						
Diode Forward Voltage	V_{SD}	$I_S=20A, V_{GS}=0V$	—	—	1.3	V
Reverse Recovery Time	t_{rr}	$I_F=50A,$ $dI_F/dt=500A/\mu s$	—	47	—	ns
Reverse Recovery Charge	Q_{rr}		—	81	—	nC

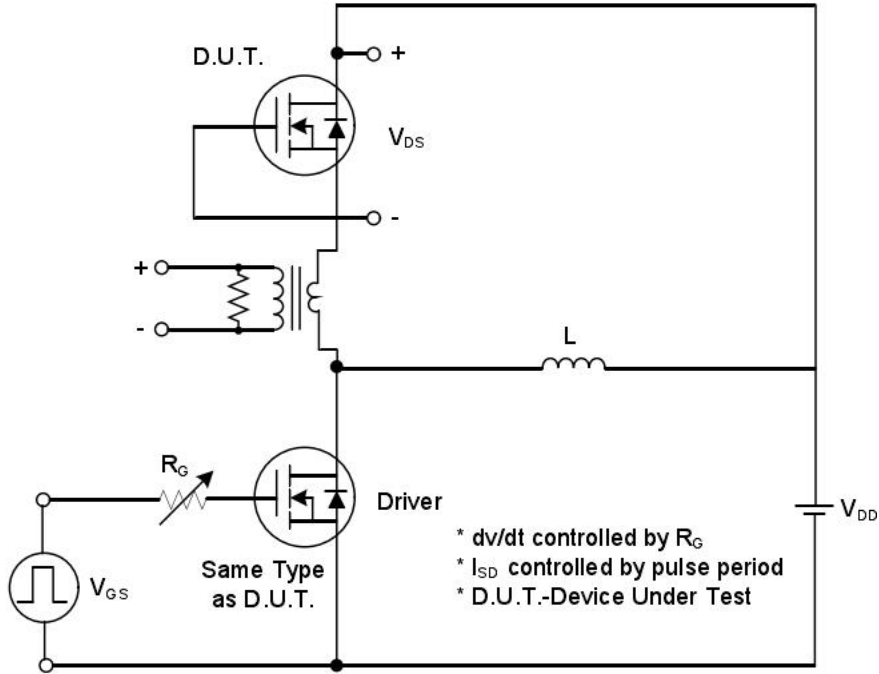
Notes

1. Repetitive Rating; pulse width limited by maximum junction temperature.
2. $L=0.5\text{mH}$, starting $T_J=25^\circ\text{C}$.
3. $dI/dt=200A/\mu s$, starting $T_J=25^\circ\text{C}$, Pulse width $\leq 300\mu s$; duty cycle $\leq 2\%$.
4. Repetitive rating; pulse width limited by maximum junction temperature.

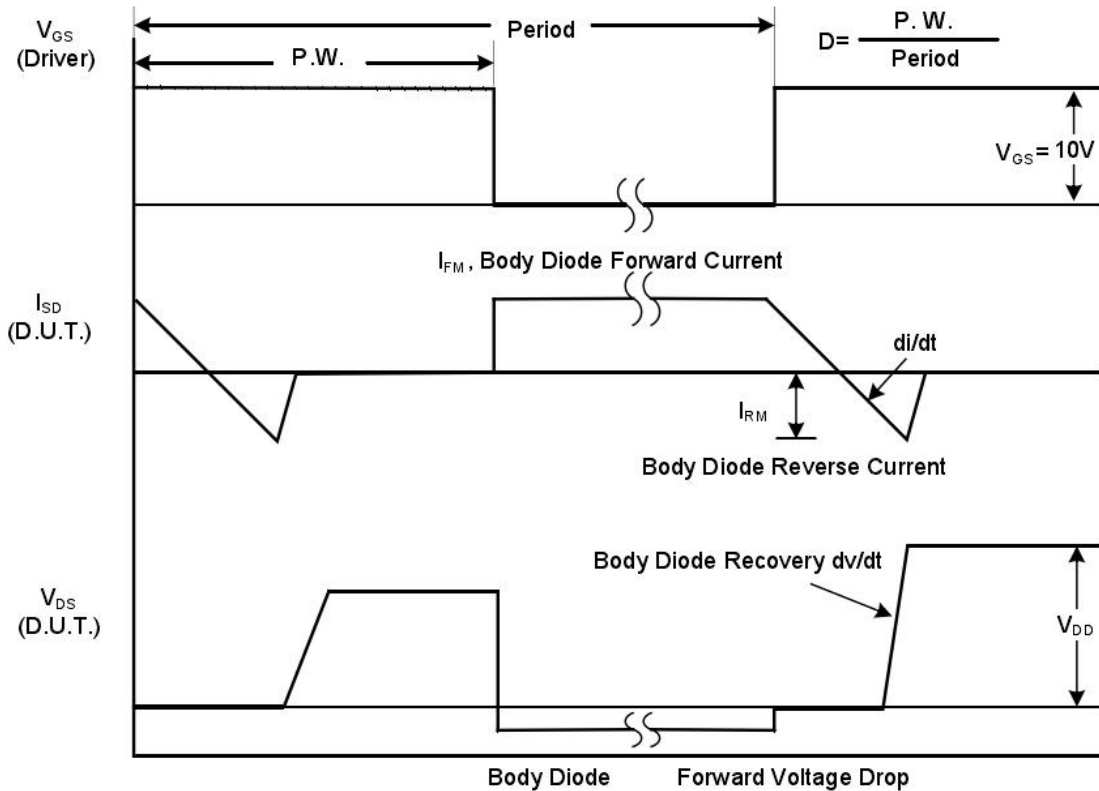
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RATING AND CHARACTERISTIC CURVES



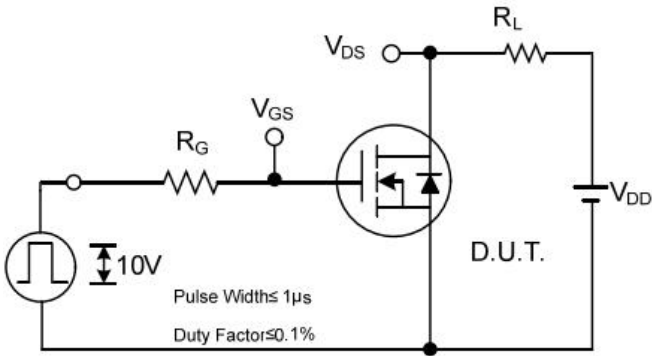
Peak Diode Recovery dv/dt Test Circuit



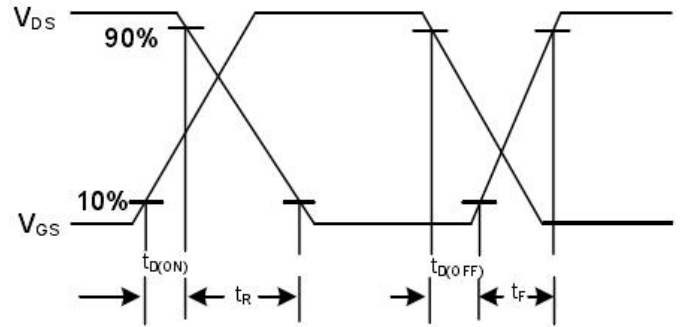
Peak Diode Recovery dv/dt Waveforms

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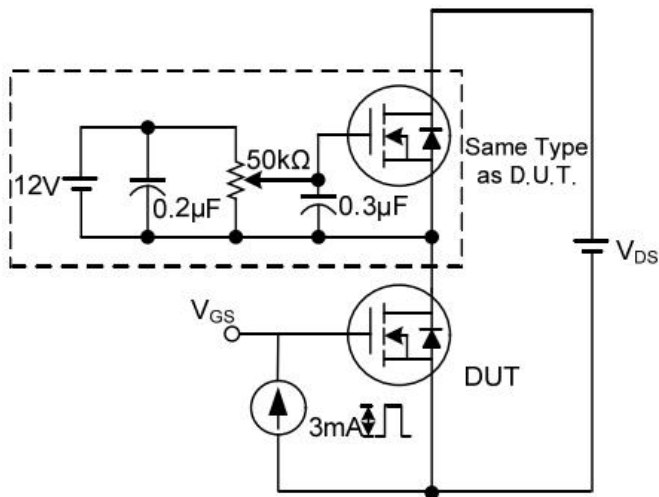
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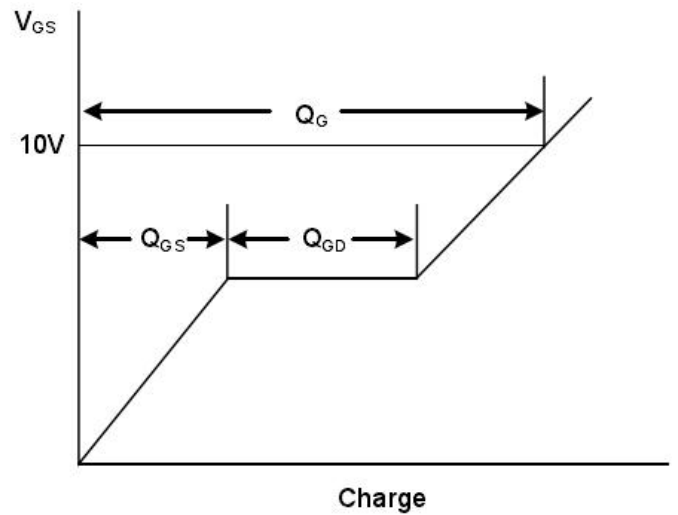
Switching Test Circuit



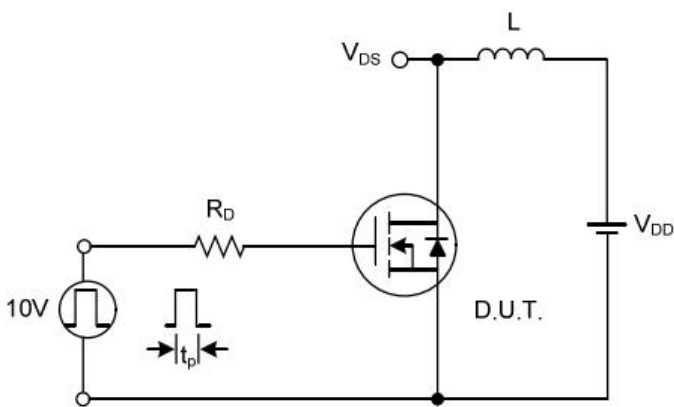
Switching Waveforms



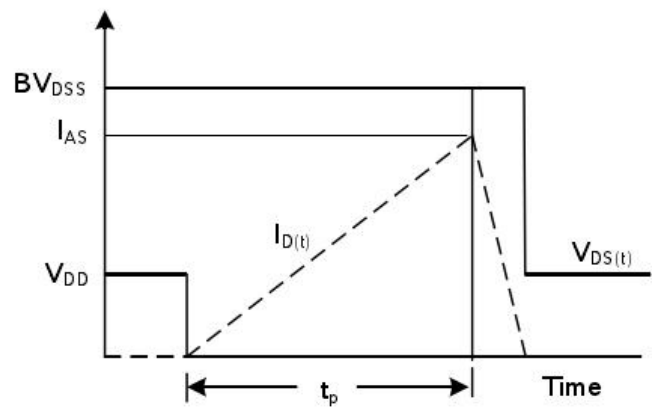
Gate Charge Test Circuit



Gate Charge Waveform



Unclamped Inductive Switching Test Circuit

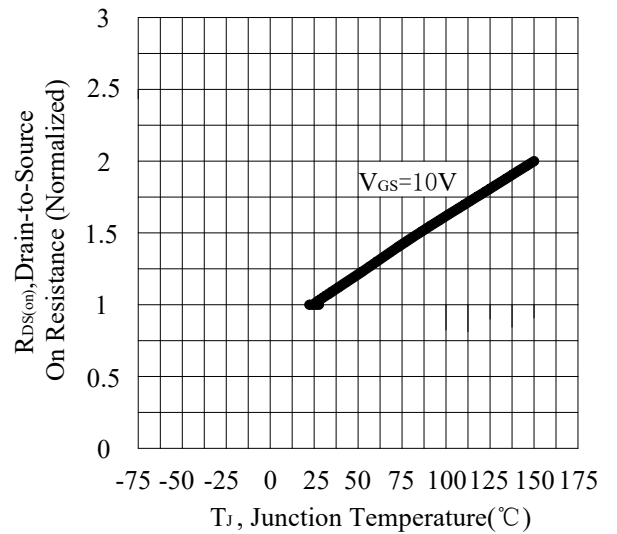
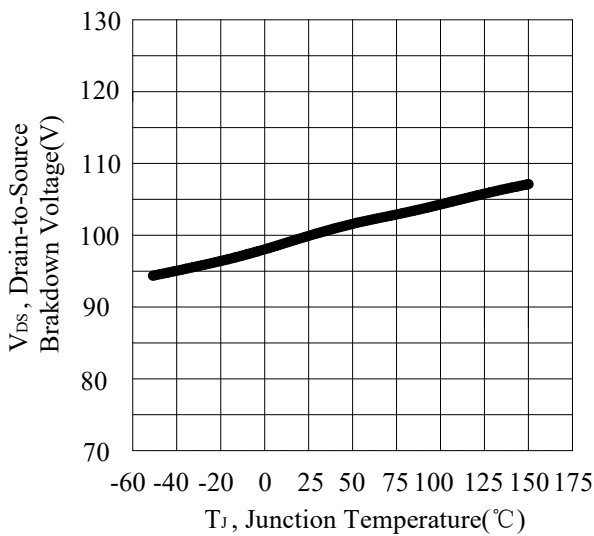
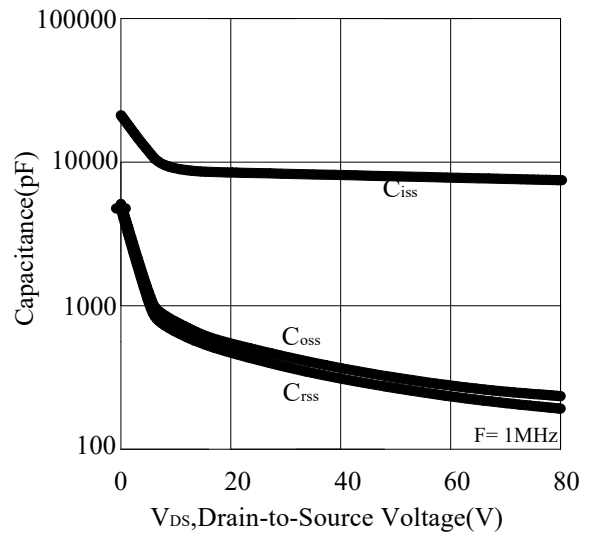
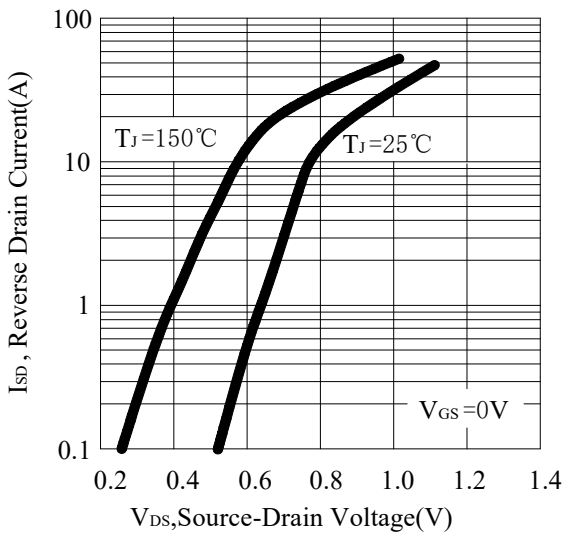
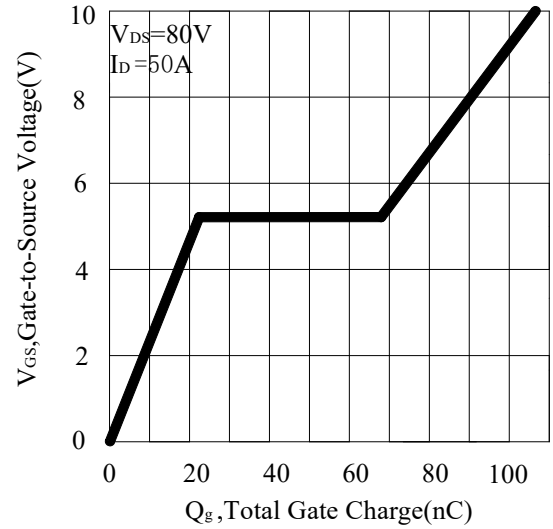
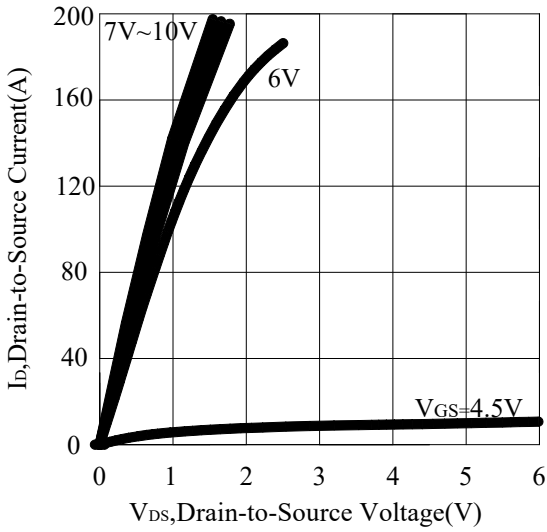


Unclamped Inductive Switching Waveforms

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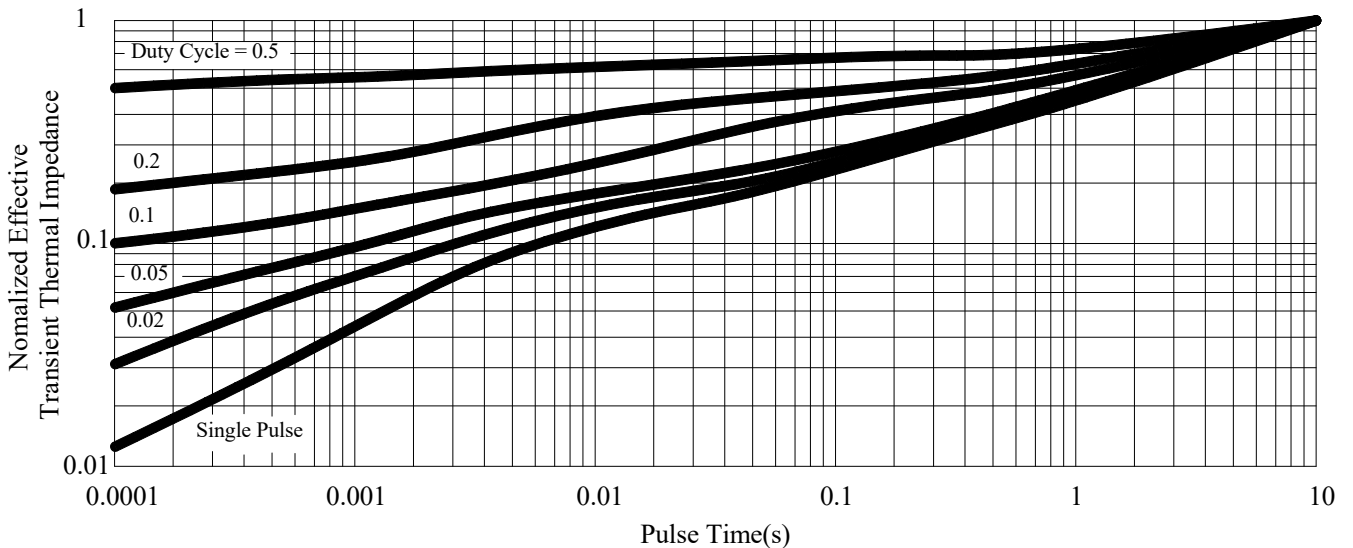
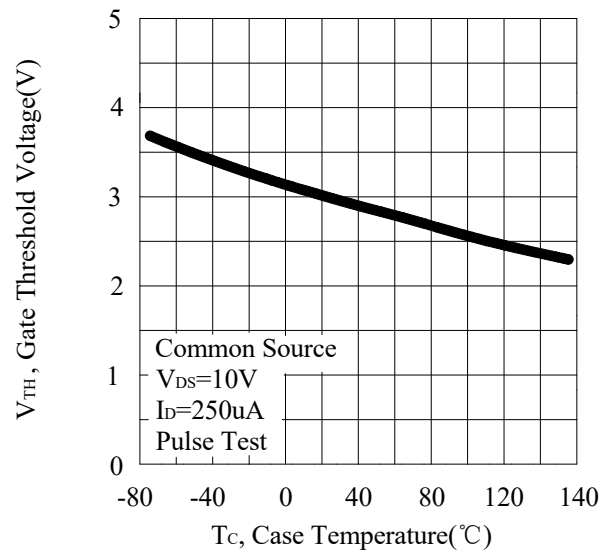
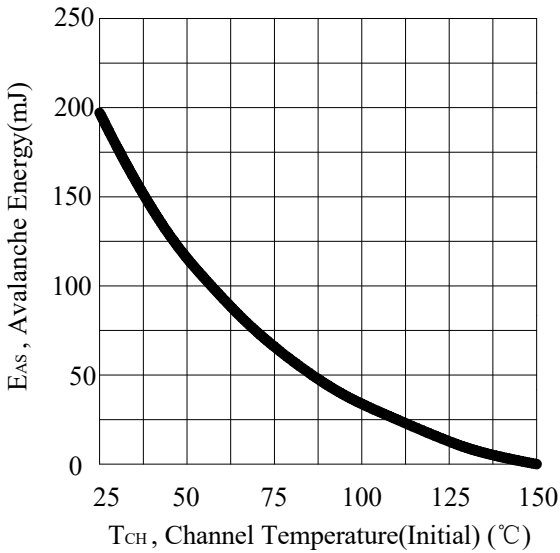
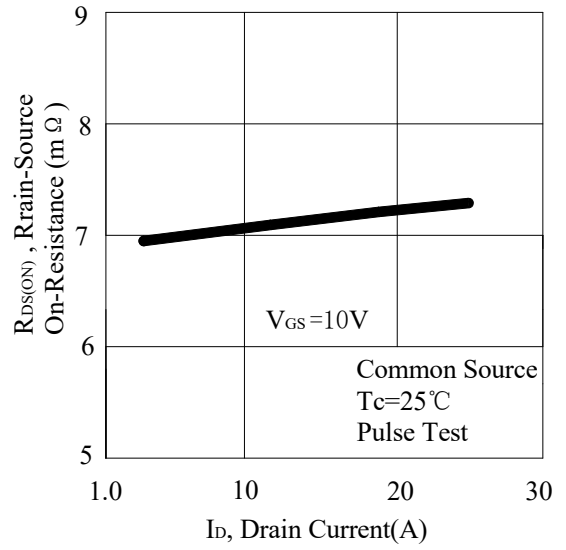
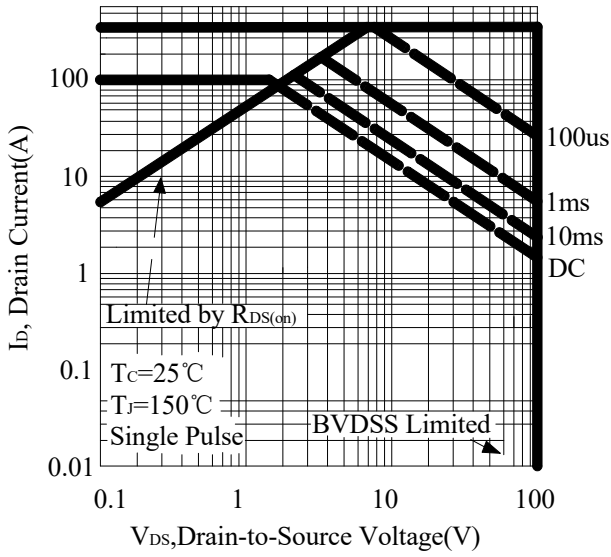
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RATING AND CHARACTERISTIC CURVES



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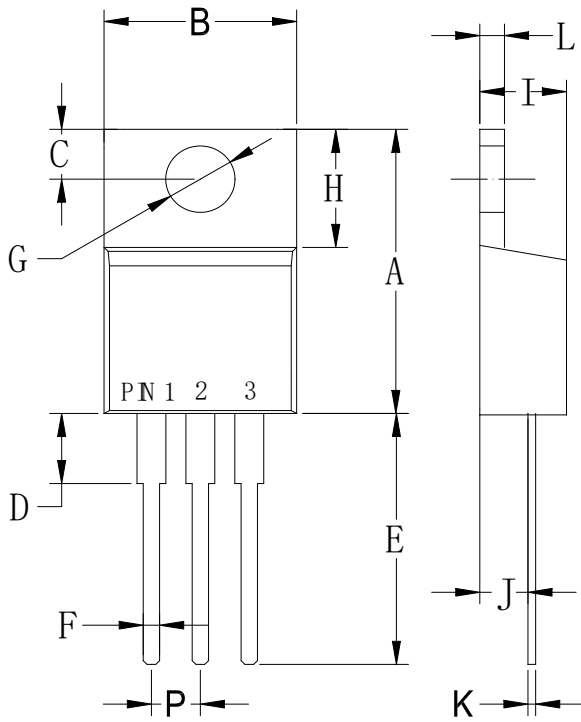


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PACKAGE OUTLINE DIMENSIONS

TO-220AB



TO-220AB		
Dim	Min	Max
A	.573 (14.55)	.603 (15.32)
B	— —	.412 (10.5)
C	.103 (2.62)	.113 (2.87)
D	.140 (3.56)	.160 (4.06)
E	.510 (13.0)	.560 (14.3)
F	.027 (0.68)	.037 (0.94)
G	.148 (3.74)	.154 (3.91)
H	.230 (5.84)	.270 (6.86)
I	.175 (4.44)	.185 (4.86)
J	.100 (2.54)	.110 (2.79)
K	.014 (0.35)	.025 (0.64)
L	.045 (1.14)	.055 (1.40)
P	.095 (2.41)	.105 (2.67)

Dimensions in inches and (millimeters)