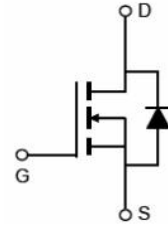


Main Product Characteristics:

V_{DSS}	68V
$R_{DS(on)}$	7.3m Ω (typ)
I_D	80A


TO-220

Schematic Diagram
Features and Benefits:

- Advanced MOSFET process technology
- Special designed for PWM, load switching and general purpose applications
- Ultra low on-resistance with low gate charge
- Fast switching and reverse body recovery
- 150°C operating temperature


Description:

It utilizes the latest processing techniques to achieve the high cell density and reduces the on-resistance with high repetitive avalanche rating. These features combine to make this design an extremely efficient and reliable device for use in power switching application and a wide variety of other applications.

Absolute Max Rating:

Symbol	Parameter	Max.	Units
I_D @ $T_C = 25^\circ\text{C}$	Continuous Drain Current, V_{GS} @ 10V ^①	80	A
I_D @ $T_C = 100^\circ\text{C}$	Continuous Drain Current, V_{GS} @ 10V ^①	52	
I_{DM}	Pulsed Drain Current ^②	320	
P_D @ $T_C = 25^\circ\text{C}$	Power Dissipation ^③	85	W
V_{DS}	Drain-Source Voltage	68	V
V_{GS}	Gate-to-Source Voltage	± 20	V
T_J T_{STG}	Operating Junction and Storage Temperature Range	-55 to +150	$^\circ\text{C}$

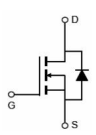
Thermal Resistance

Symbol	Characteristics	Typ.	Max.	Units
$R_{\theta JC}$	Junction-to-case ③	—	1.46	$^{\circ}\text{C}/\text{W}$

Electrical Characteristics @ $T_J=25^{\circ}\text{C}$ unless otherwise specified

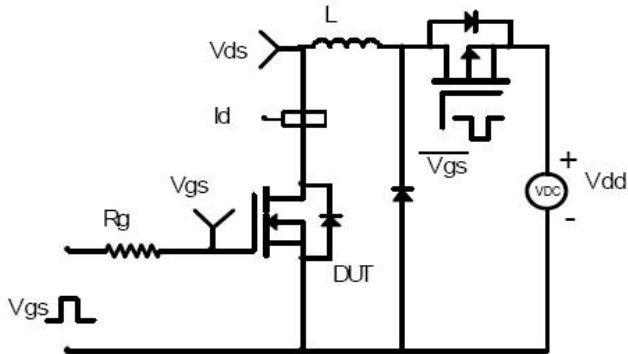
Symbol	Parameter	Min.	Typ.	Max.	Units	Conditions
$V_{(BR)DSS}$	Drain-to-Source breakdown voltage	68	—	—	V	$V_{GS} = 0\text{V}, I_D = 250\mu\text{A}$
$R_{DS(on)}$	Static Drain-to-Source on-resistance	—	7.3	9.5	m Ω	$V_{GS}=10\text{V}, I_D=30\text{A}$
$V_{GS(th)}$	Gate threshold voltage	2	—	4	V	$V_{DS}=V_{GS}, I_D=250\mu\text{A}$
I_{DSS}	Drain-to-Source leakage current $T_J=25^{\circ}\text{C}$	—	—	1	μA	$V_{DS}=68\text{V}, V_{GS}=0\text{V}$
I_{GSS}	Gate-to-Source forward leakage	—	—	100	nA	$V_{GS}=20\text{V}, V_{DS}=0\text{V}$
		—	—	-100		$V_{GS}=-20\text{V}, V_{DS}=0\text{V}$
Q_g	Total gate charge	—	36	—	nC	$V_{GS}=10\text{V},$ $V_{DS}=30\text{V}, I_D=20\text{A}$
Q_{gs}	Gate-to-Source charge	—	12	—		
Q_{gd}	Gate-to-Drain("Miller") charge	—	10	—		
$t_{d(on)}$	Turn-on delay time	—	16	—	ns	$V_{GS}=10\text{V}$ $V_{DS}=30\text{V}$ $R_G=6\Omega$ $I_D=20\text{A}$
t_r	Rise time	—	95	—		
$t_{d(off)}$	Turn-Off delay time	—	47	—		
t_f	Fall time	—	33	—		
C_{iss}	Input capacitance	—	3963	—	pF	$V_{GS}=0\text{V}$ $V_{DS}=25\text{V}$ $f=1\text{MHz}$
C_{oss}	Output capacitance	—	262	—		
C_{rss}	Reverse transfer capacitance	—	223	—		

Source-Drain Ratings and Characteristics

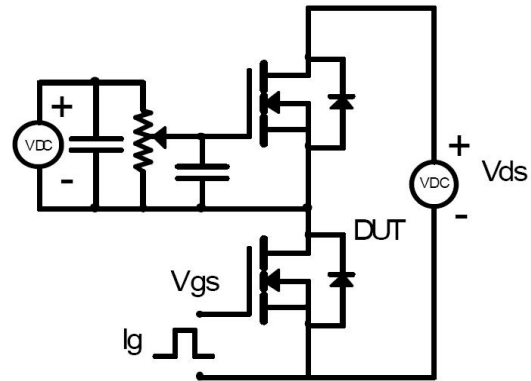
Symbol	Parameter	Min.	Typ.	Max.	Units	Conditions
I_S	Continuous Source Current (Body Diode)	—	—	80	A	MOSFET symbol showing the integral reverse p-n junction diode. 
I_{SM}	Pulsed Source Current (Body Diode)	—	—	320	A	
V_{SD}	Diode Forward Voltage	—	—	1.2	V	$I_S=30\text{A}, V_{GS}=0\text{V}$

Test Circuits and Waveforms

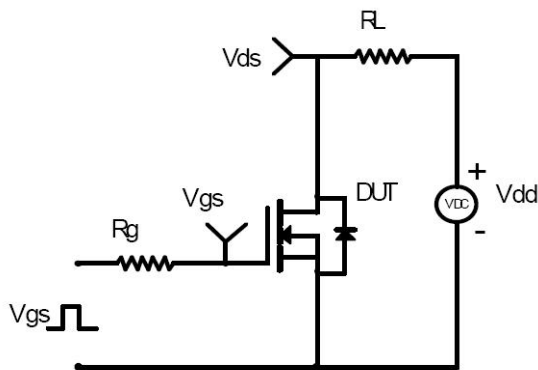
EAS Test Circuit:



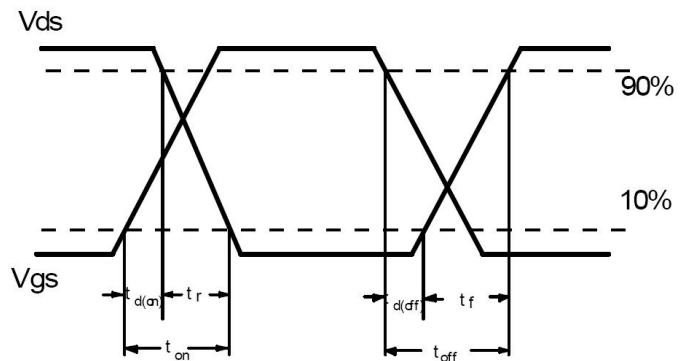
Gate Charge Test Circuit:



Switching Time Test Circuit:

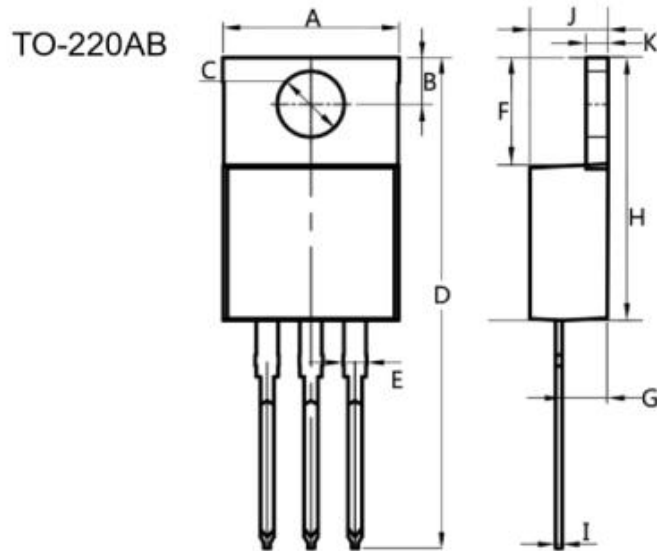


Switching Waveforms:



Notes:

- ① Calculated continuous current based on maximum allowable junction temperature.
- ② Repetitive rating; pulse width limited by max. junction temperature.
- ③ The power dissipation P_D is based on max. junction temperature, using junction-to-case thermal resistance.

Mechanical Data:
Unit:mm


Dim.	Min.	Max.
A	10.0	10.4
B	2.5	3.0
C	3.5	4.0
D	28.0	30.0
E	1.1	1.5
F	6.2	6.6
G	2.9	3.3
H	15.0	16.0
I	0.35	0.45
J	4.3	4.7
K	1.2	1.4
All Dimensions in millimeter		

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