

Features

- Split Gate Trench MOSFET Technology
- Low Thermal Resistance
- Halogen Free. "Green" Device (Note 1)
- Epoxy Meets UL 94 V-0 Flammability Rating
- Lead Free Finish/RoHS Compliant ("P" Suffix Designates RoHS Compliant. See Ordering Information)

Maximum Ratings

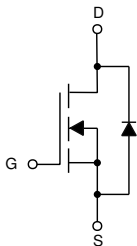
- Operating Junction Temperature Range : -55°C to +150°C
- Storage Temperature Range: -55°C to +150°C
- Thermal Resistance: 0.85°C/W Junction to Case⁽²⁾

Parameter	Symbol	Rating	Unit
Drain-Source Voltage	V _{DS}	100	V
Gate-Source Voltage	V _{GS}	±20	V
Continuous Drain Current	I _D	100	A
Pulsed Drain Current ⁽³⁾	I _{DM}	240	A
Total Power Dissipation	P _D	147	W
Single Pulsed Avalanche Energy ⁽⁴⁾	E _{AS}	800	mJ

Note:

1. Halogen free "Green" products are defined as those which contain <900ppm bromine, <900ppm chlorine (<1500ppm total Br + Cl) and <1000ppm antimony compounds.
2. Surface Mounted on 1 in² pad area, t ≤ 10 sec
3. Pulse Test: Pulse Width ≤ 300us, Duty cycle ≤ 2%.
4. T_J = 25°C, V_{DD} = 50V, L = 1.0mH.

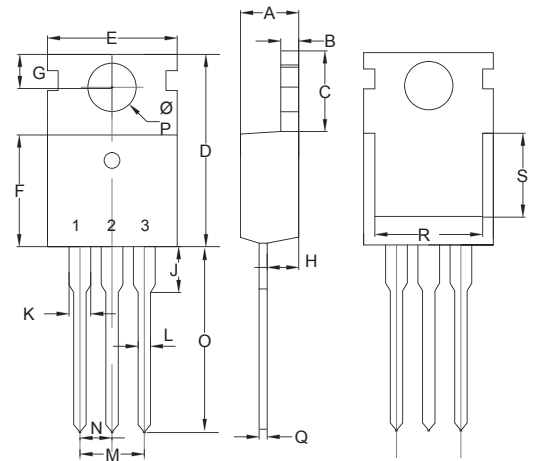
Internal Structure



1. Gate
2. Drain
3. Source

**N-CHANNEL
MOSFET**

TO-220AB(H)



DIM	INCHES		MM		NOTE
	MIN	MAX	MIN	MAX	
A	0.172	0.188	4.37	4.77	
B	0.049	0.057	1.25	1.45	
C	0.246	0.270	6.25	6.85	
D	0.594	0.634	15.10	16.10	
E	0.382	0.406	9.70	10.30	
F	0.346	0.370	8.80	9.40	
G	0.102	0.118	2.60	3.00	
H	0.087	0.102	2.20	2.60	
J	-----	0.134	-----	3.40	
K	0.046	0.058	1.17	1.47	
L	0.028	0.037	0.70	0.95	
M	0.200		5.08		TYP.
N	0.100		2.54		TYP.
O	0.502	0.543	12.75	13.80	
P	0.134	0.150	3.40	3.80	Φ
Q	0.016	0.026	0.40	0.65	
R	0.276	-----	7.00	-----	
S	0.217	-----	5.50	-----	

Electrical Characteristics @ 25°C (Unless Otherwise Specified)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Static Characteristics						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	$V_{GS}=0V, I_D=250\mu A$	100			V
Gate-Source Leakage Current	I_{GSS}	$V_{DS}=0V, V_{GS}=\pm 20V$			± 100	nA
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS}=80V, V_{GS}=0V$			1	μA
Gate-Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=250\mu A$	2		4	V
Drain-Source On-Resistance	$R_{DS(on)}$	$V_{GS}=10V, I_D=20A$		2.9	3.5	m Ω
		$V_{GS}=4.5V, I_D=10A$		6.6	8.5	m Ω
Diode Characteristics						
Continuous Body Diode Current	I_S				100	A
Diode Forward Voltage	V_{SD}	$V_{GS}=0V, I_S=20A$			1.3	V
Reverse Recovery Time	t_{rr}	$I_F=20A, di_F/dt=100A/\mu s$		96		ns
Reverse Recovery Charge	Q_{rr}			233		nC
Dynamic Characteristics						
Input Capacitance	C_{iss}	$V_{DS}=50V, V_{GS}=0V, f=1MHz$		6897		pF
Output Capacitance	C_{oss}			1039		
Reverse Transfer Capacitance	C_{rss}			27		
Total Gate Charge	Q_g	$V_{DS}=50V, V_{GS}=10V, I_D=20A$		122		nC
Gate-Source Charge	Q_{gs}			32		
Gate-Drain Charge	Q_{gd}			31		
Turn-On Delay Time	$t_{d(on)}$	$V_{DS}=50V, V_{GEN}=10V, R_G=4.5\Omega, R_L=2.5\Omega, I_{DS}=20A$		26		ns
Turn-On Rise Time	t_r			55		
Turn-Off Delay Time	$t_{d(off)}$			72		
Turn-Off Fall Time	t_f			66		

Curve Characteristics

Fig. 1 - Typical Output Characteristics

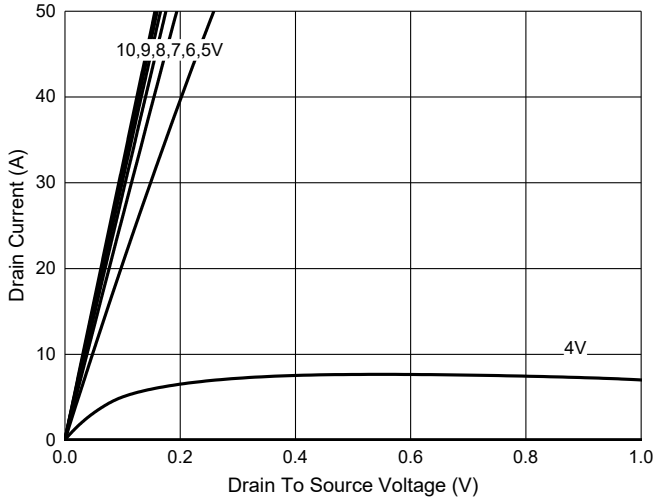


Fig. 2 - $I_S - V_{SD}$

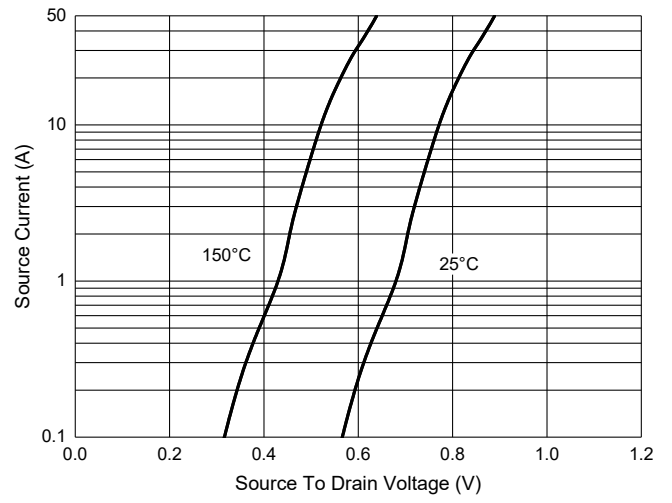


Fig. 3 - $R_{DS(ON)} - I_D$

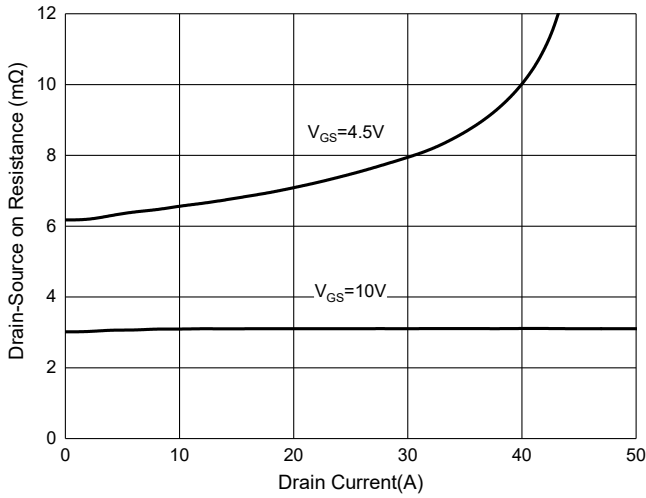


Fig. 4 - Normalized On Resistance Characteristics

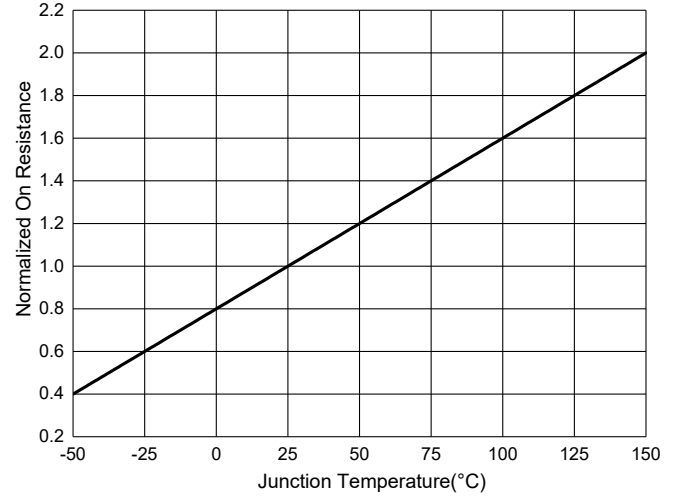


Fig. 5 - Capacitance Characteristics

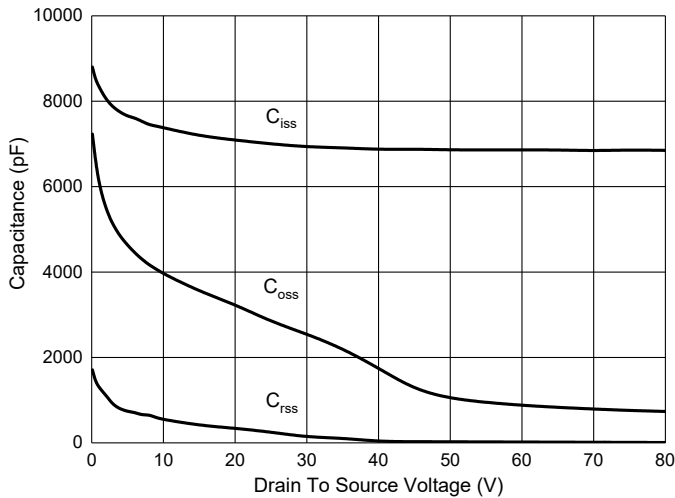
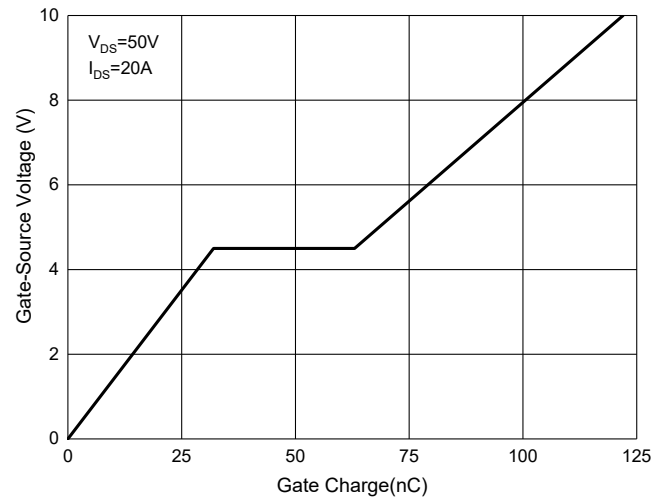
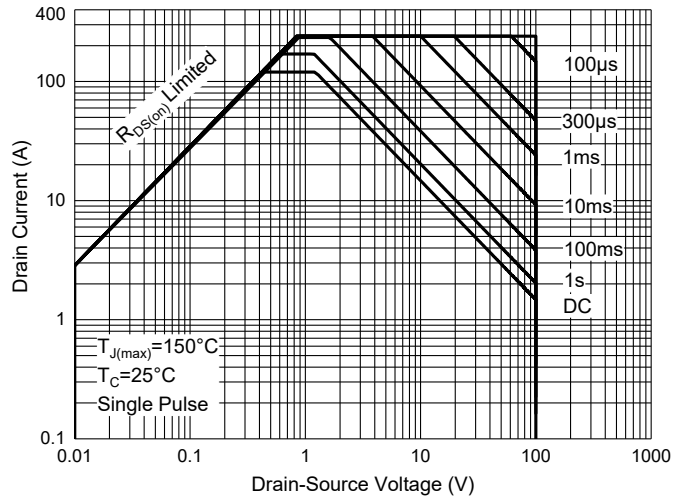


Fig. 6 - Gate Charge



Curve Characteristics

Fig. 7 - Safe Operation Area



Ordering Information

Device	Packing
Part Number-BP	Bulk: 50pcs/Tube; 1Kpcs/Box; 5Kpcs/Ctn

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