

**Features**

- High Current Rating
- Epoxy Meets UL 94 V-0 Flammability Rating
- Moisture Sensitivity Level 1
- Halogen Free. "Green" Device (Note 1)
- Lead Free Finish/RoHS Compliant ("P" Suffix Designates RoHS Compliant. See Ordering Information)

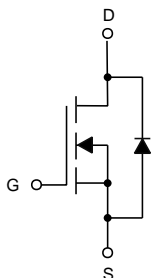
**Maximum Ratings**

- Operating Junction Temperature Range : -55°C to +150°C
- Storage Temperature Range: -55°C to +150°C
- Thermal Resistance: 1.71°C/W Junction to Case

Parameter	Symbol	Rating	Unit
Drain-Source Voltage	$V_{DS}$	650	V
Continuous Drain Current @ 25°C	$I_D$	7	A
Continuous Drain Current @ 100°C	$I_D$	4.2	A
Pulsed Drain Current <sup>(Note 2)</sup>	$I_{DM}$	28	A
Gate-Source Voltage	$V_{GS}$	±30	V
Single Pulse Avalanche <sup>(Note 3)</sup>	$E_{AS}$	220	mJ
Pulsed Avalanche Rating <sup>(Note 3)</sup>	$I_{AS}$	7	A
Power Dissipation	$P_D$	73	W

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. Pulse Width Limited by Maximum Junction Temperature.  
 3.  $V_{DD}=50V$ ,  $V_{DS}=650V$ ,  $R_G=25\Omega$ ,  $T_J=25^\circ C$ .

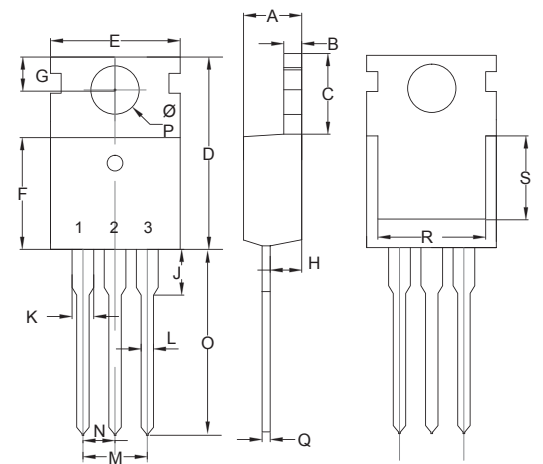
**Internal Structure**



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
<b>Static Characteristics</b>						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	$V_{GS}=0V, I_D=250\mu A$	650			V
Gate-Source Leakage Current	$I_{GSS}$	$V_{DS}=0V, V_{GS}=\pm 30V$			$\pm 100$	nA
Zero Gate Voltage Drain Current	$I_{DSS}$	$V_{DS}=650V, V_{GS}=0V, T_J=25^\circ C$			1	$\mu A$
		$V_{DS}=650V, V_{GS}=0V, T_J=150^\circ C$			10	
Gate-Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=250\mu A$	2.5		4.5	V
Drain-Source On-Resistance	$R_{DS(on)}$	$V_{GS}=10V, I_D=3.5A$		1.15	1.4	$\Omega$
<b>Dynamic Characteristics</b>						
Input Capacitance	$C_{iss}$	$V_{DS}=25V, V_{GS}=0V, f=1MHz$		1600		$\mu F$
Output Capacitance	$C_{oss}$			85		
Reverse Transfer Capacitance	$C_{rss}$			3.5		
Total Gate Charge	$Q_g$	$V_{DD}=520V, V_{GS}=10V, I_D=7A$		26		nC
Gate-Source Charge	$Q_{gs}$			10.5		
Gate-Drain Charge	$Q_{gd}$			7.1		
<b>Drain-Source Diode Characteristics and Maximum Ratings</b>						
Maximum Body-Diode Continuous Current	$I_S$				7	A
Diode Forward Voltage	$V_{SD}$	$V_{GS}=0V, I_F=I_S$			1.5	V

## Curve Characteristics

Fig. 1 - Typical Output Characteristics

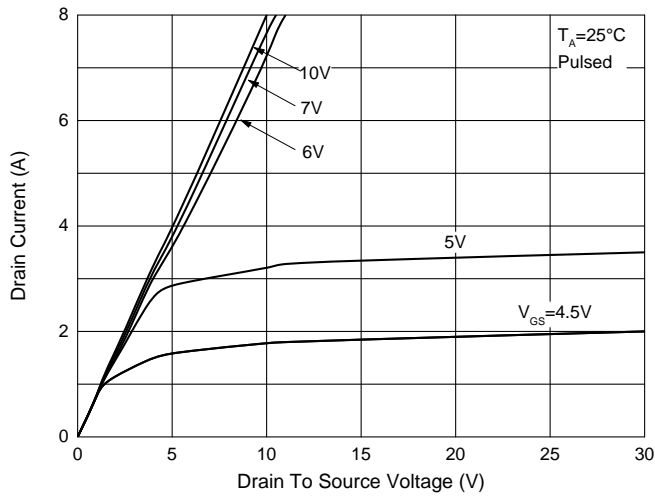


Fig. 2 - Drain-Source On-Resistance Characteristics

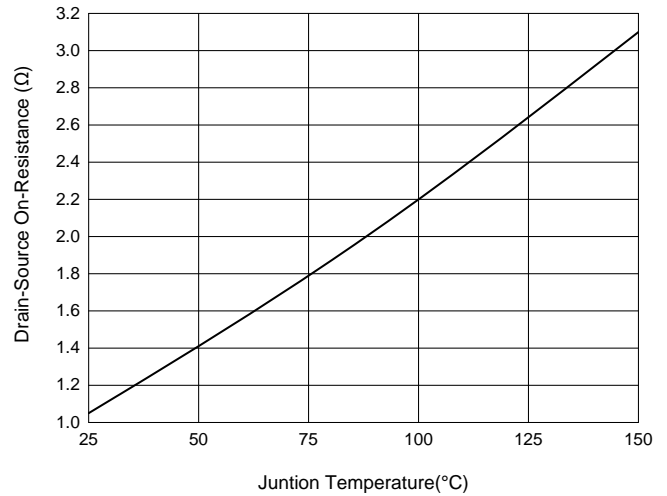


Fig. 3 - Drain-Source Breakdown Voltage Characteristics

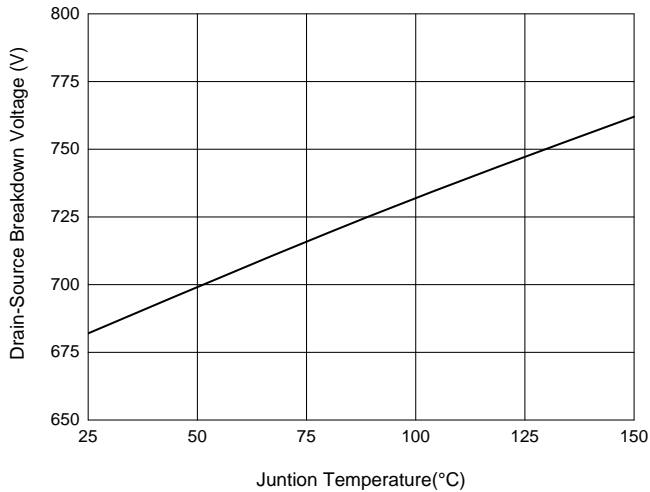


Fig. 4 - Drain Current Characteristics

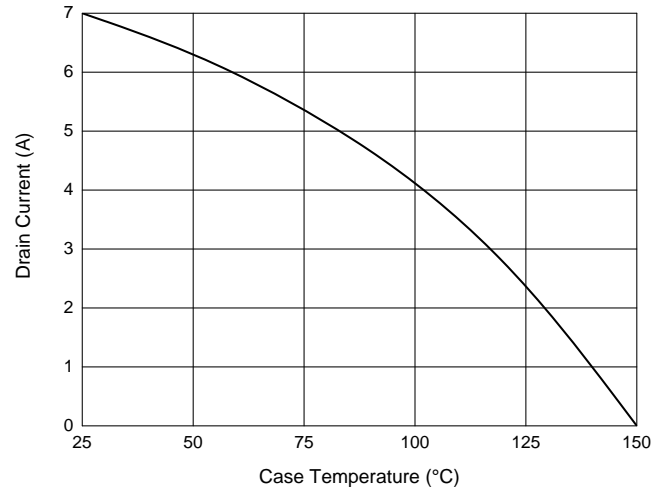


Fig. 5 - Total Gate Charge Characteristics

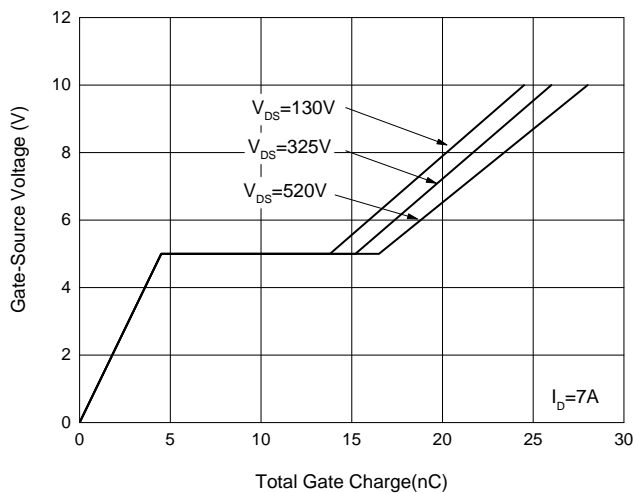
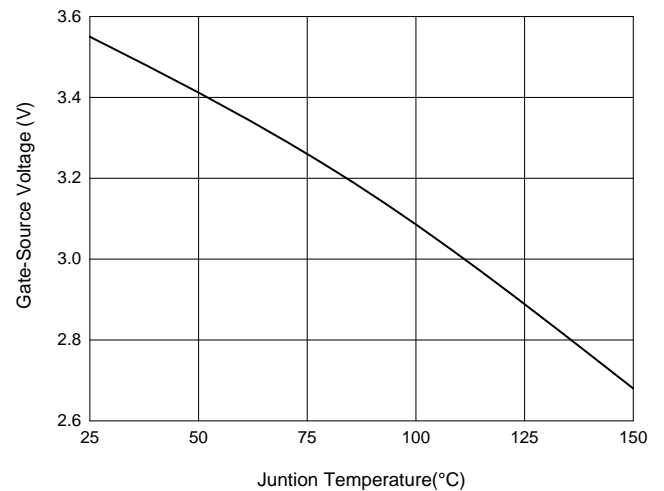


Fig. 6 - Gate-Source Voltage Characteristics



## Ordering Information

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

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