

Features

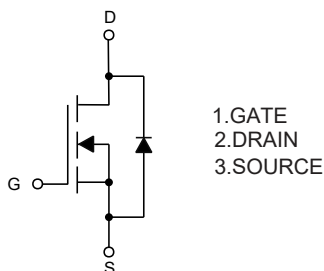
- High Current Rating
- Lower $R_{DS(ON)}$
- Lower Capacitance
- Lower Total Gate Charge
- Tighter V_{SD} Specifications
- Avalanche Energy Specified
- Epoxy Meets UL 94 V-0 Flammability Rating
- Moisture Sensitivity Level 1
- Halogen Free Available Upon Request By Adding Suffix "-HF"
- Lead Free Finish/RoHS Compliant ("P" Suffix Designates RoHS Compliant. See Ordering Information)

Maximum Ratings

- Operating Junction Temperature Range: -55°C to $+150^{\circ}\text{C}$
- Storage Temperature Range: -55°C to $+150^{\circ}\text{C}$
- Thermal Resistance: 62.5°C/W Junction to Ambient

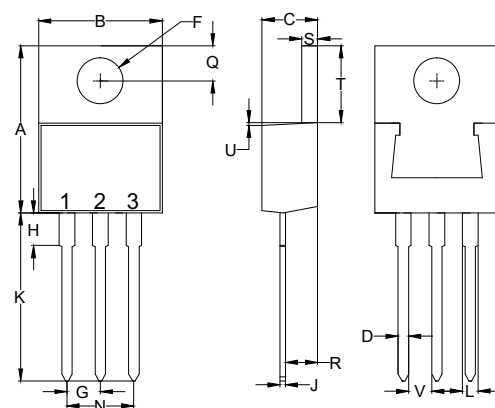
Parameter	Symbol	Rating	Unit
Drain -Source Voltage	V_{DS}	650	V
Gate -Source Voltage	V_{GS}	± 30	V
Drain Current-Continuous	I_D	4.0	A
Drain Current-Pulse	I_{DM}	16	A
Power Dissipation	P_D	2.0	W
Single Pulsed Avalanche Energy ^(Note1)	E_{AS}	80	mJ

Internal Structure



N-CHANNEL MOSFET

TO-220



DIM	INCHES		MM		NOTE
	MIN	MAX	MIN	MAX	
A	0.560	0.625	14.22	15.88	
B	0.380	0.420	9.65	10.67	
C	0.140	0.190	3.56	4.82	
D	0.020	0.045	0.51	1.14	
F	0.139	0.161	3.53	4.09	Φ
G	0.090	0.110	2.29	2.79	
H	-----	0.250	-----	6.35	
J	0.012	0.025	0.30	0.64	
K	0.500	0.580	12.70	14.73	
L	0.045	0.060	1.14	1.52	
N	0.190	0.210	4.83	5.33	
Q	0.100	0.135	2.54	3.43	
R	0.080	0.115	2.04	2.92	
S	0.045	0.055	1.14	1.39	
T	0.230	0.270	5.84	6.86	
U	-----	0.050	-----	1.27	
V	0.045	-----	1.15	-----	

ELECTRICAL CHARACTERISTICS (Ta=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 =250μA	650			V
Gate-Threshold Voltage ^(Note2)	V _{GS(th)}	V _{DS} =V _{GS} , I _D =250μA	2.0		4.0	V
Gate-Body Leakage Current ^(Note2)	I _{GSS}	V _{GS} =± 30V, V _{DS} =0V			±100	nA
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} =600V, V _{GS} =0V			25	μA
Drain-Source On-Resistance ^(Note2)	R _{DS(on)}	V _{GS} =10V, I _D =2A			3	Ω
Drain- Source Diode Forward Voltage ^(Note2)	V _{SD}	V _{GS} =0V, I _S =4A			1.5	V
Dynamic Characteristics						
Input Capacitance ^(Note3)	C _{iss}	V _{DS} =25V,V _{GS} =0V, f=1MHz			760	pF
Output Capacitance ^(Note3)	C _{oss}				180	
Reverse Transfer Capacitance ^(Note3)	C _{rss}				20	
Switching Characteristics						
Total Gate Charge	Q _g	V _{DS} =480V,V _{GS} =10V,I _D =4A		5	10	Nc
Gate-Source Charge	Q _{gs}			2.7		
Gate-Drain Charge	Q _{gd}			2		
Turn-on Delay Time ^(Note3)	t _{d(on)}	V _{DD} =300V,V _{GS} =10V,R _G =9.1Ω, I _D =4A			20	ns
Turn-on Rise Time ^(Note3)	t _r				10	
Turn-off Delay Time ^(Note3)	t _{d(off)}				40	
Turn-off Fall Time ^(Note3)	t _f				20	

Note: 1. L=10mH, $I_L=4A, V_{DD}=50V, V_{GS}=10V, R_G=25\Omega$, Starting $T_J=25^\circ C$

2. Pulse Test : Pulse Width $\leq 300\mu s$, Duty Cycle $\leq 2\%$

3. These Parameters Have No Way to Verify

Curve Characteristics

Fig. 1 - Output Characteristics

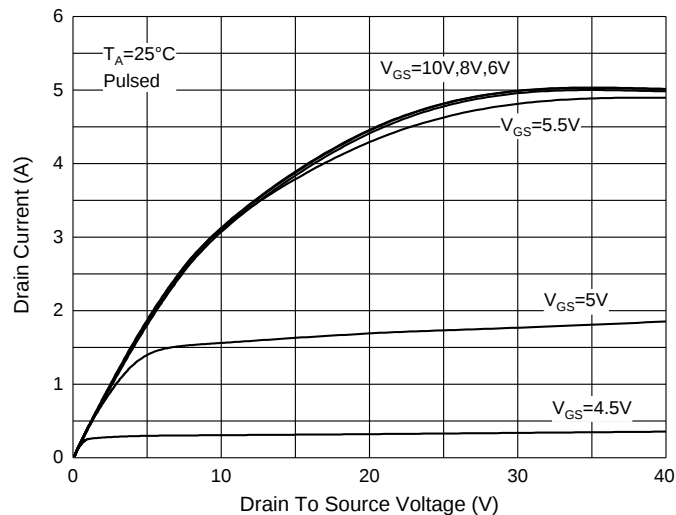


Fig. 2 - Transfer Characteristics

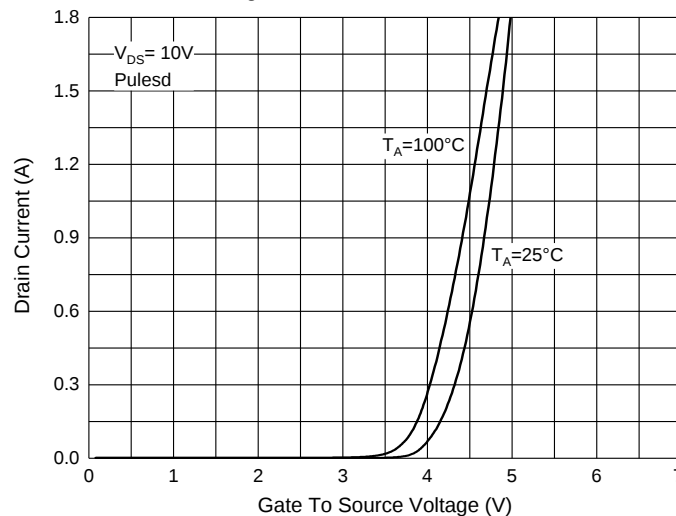


Fig. 3 - $R_{DS(ON)} - I_D$

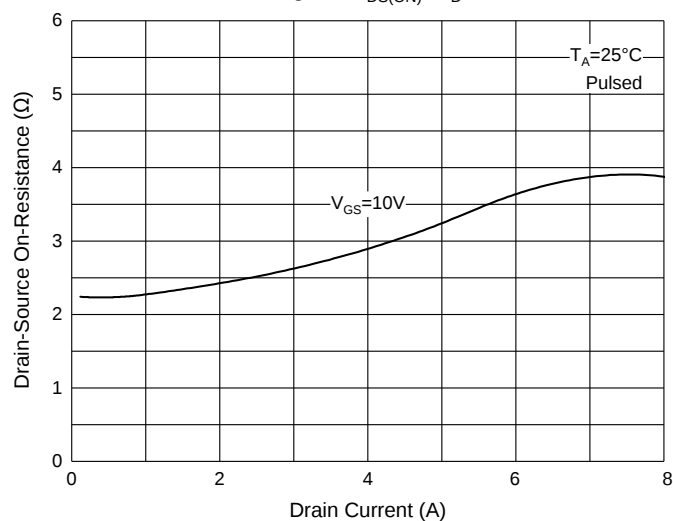


Fig. 4 - $R_{DS(ON)} - V_{GS}$

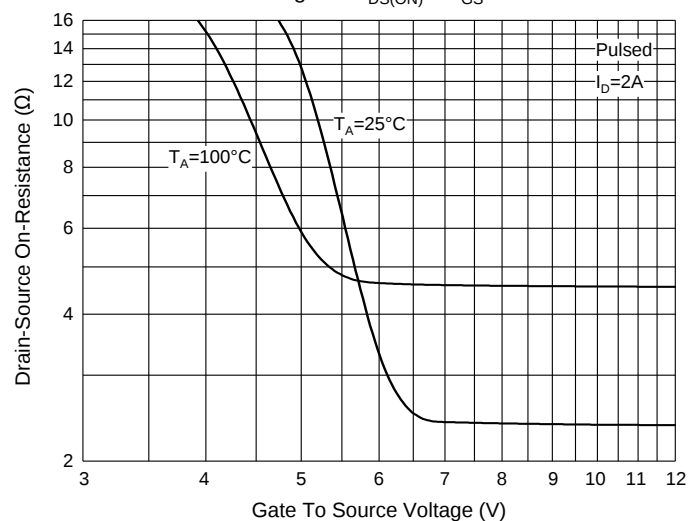


Fig. 5 - $I_S - V_{SD}$

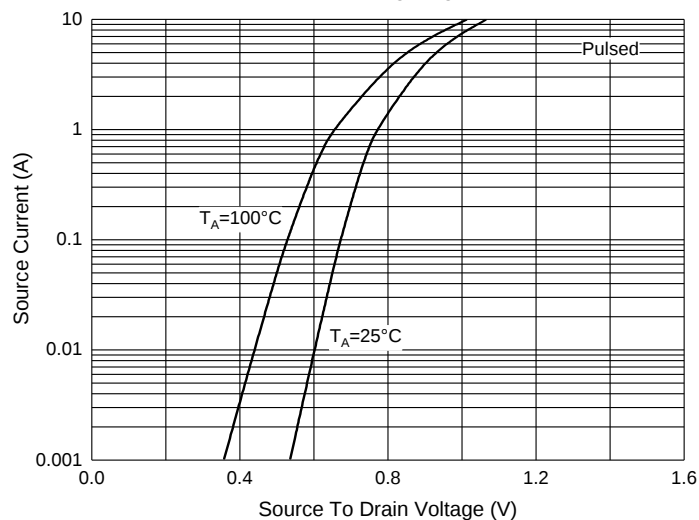
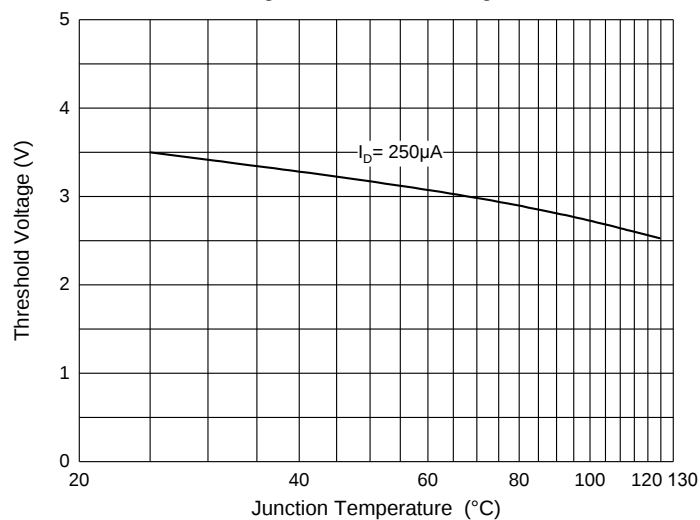


Fig. 6 - Threshold Voltage



Ordering Information

Device	Packing
Part Number-BP	Bulk:1Kpcs/Box

Note : Adding "-HF" Suffix For Halogen Free, eg. Part Number-BP-HF

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