

Features

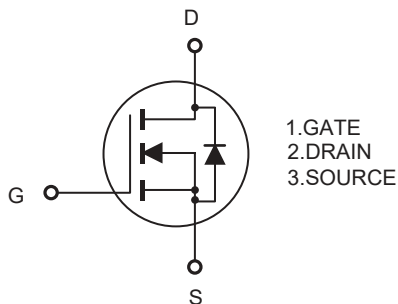
- Low On-resistance and Low Conduction Losses
- Epoxy Meets UL 94 V-0 Flammability Rating
- Halogen Free Available Upon Request By Adding Suffix "-HF"

Maximum Ratings

- Operating Junction Temperature Range: -55°C to +150°C
- Storage Temperature Range: -55°C to +150°C
- Thermal Resistance: 2.55°C/W Junction to Case

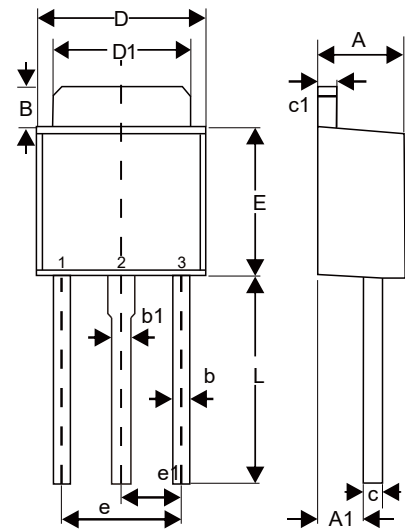
Parameter	Symbol	Rating	Unit
Drain -Source Voltage	V_{DS}	650	V
Gate -Source Voltage	V_{GS}	± 30	V
Drain Current-Continuous@ $T_c=25^\circ\text{C}$	I_D	5.0	A
Drain Current-Continuous@ $T_c=100^\circ\text{C}$	I_D	3.0	A
Drain Current-Pulsed ^(Note 1)	I_{DM}	15	A
Power Dissipation@ $T_c=25^\circ\text{C}$	P_D	49	W
Single Pulsed Avalanche Energy ^(note 2)	E_{AS}	135	mJ

Internal Structure



N-Channel Enhancement Mode Field Effect Transistor

TO-251



DIM	INCHES		MM		NOTE
	MIN	MAX	MIN	MAX	
A	0.087	0.094	2.20	2.40	
A1	0.042	0.054	1.05	1.35	
B	0.053	0.065	1.35	1.65	
b	0.020	0.028	0.50	0.70	
b1	0.028	0.035	0.70	0.90	
c	0.017	0.023	0.43	0.58	
c1	0.017	0.023	0.43	0.58	
D	0.250	0.262	6.35	6.65	
D1	0.205	0.213	5.20	5.40	
E	0.213	0.224	5.40	5.70	
e1	0.091		2.300		TYP.
e	0.177	0.185	4.50	4.70	
L	0.295	0.311	7.50	7.90	

Electrical Characteristics @ 25°C (Unless Otherwise Noted)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Off Characteristics						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	$V_{GS}=0V, I_D=250\mu A$	650			V
Drain-Source Diode Forward Voltage	V_{SD}	$T_J = 25^\circ C, V_{GS}=0V, I_{SD}=5.0A$		1.0	1.3	V
Zero Gate Voltage Drain Current	I_{DSS}	$T_J = 25^\circ C, V_{DS}=650V, V_{GS}=0V$			1.0	μA
		$T_J = 125^\circ C, V_{DS}=650V, V_{GS}=0V$			50	μA
Gate-Body Leakage	I_{GSS}	$V_{GS} = \pm 30V, V_{DS} = 0V$			± 100	nA
On Characteristics						
Gate-Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=250\mu A$	2.5	3.0	3.5	V
Static Drain-Source On-Resistance	$R_{DS(on)}$	$V_{GS}=10V, I_D=2.5A$		0.78	0.9	Ω
Forward Transconductance	g_{fs}	$V_{GS}=20V, I_D=3A$		4.8		S
Dynamic Characteristics						
Input Capacitance	C_{iss}	$V_{DS}=50V, V_{GS}=0V, f=1MHz$		460		pF
Output Capacitance	C_{oss}			45		
Reverse Transfer Capacitance	C_{rss}			3.5		
Switching characteristics						
Total Gate Charge	Q_g	$V_{DS}=480V, V_{GS}=10V, I_D=5A$		10	20	nC
Gate-Source Charge	Q_{gs}			1.6		
Gate-Drain Charge	Q_{gd}			4		
Intrinsic Gate Resistance	R_G	$f = 1 MHz$ open drain		25		Ω
Turn-On Delay Time	$t_{d(on)}$	$V_{DD} = 380V, V_{GS} = 10V$ $R_G = 18\Omega, I_D = 3.0A$		6		ns
Turn-On Rise Time	t_r			3		
Turn-Off Delay Time	$t_{d(off)}$			50	60	
Turn-Off Fall Time	t_f			9	15	
Drain-Source Diode Characteristics						
Maximum Continuous Drain-source Diode Forward Current	I_{SD}	$T_C = 25^\circ C$			5	A
Maximum Pulsed Drain-source Diode Forward Current	I_{SDM}				15	A
Reverse Recovery Time	t_{rr}	$I_F = 5A, T_J = 25^\circ C$ $di/dt = 100A/\mu s$		250		ns
Reverse Recovery Charge	Q_{rr}			2.2		μC
Peak Reverse Recovery Current	I_{rrm}			15		A

Notes:

1. Pulse width limited by maximum junction temperature
2. $V_{DD}=50V, V_G=10V, R_G=25\Omega, T_J=25^\circ C$.

Curve Characteristics

Fig. 1 - Output Characteristics

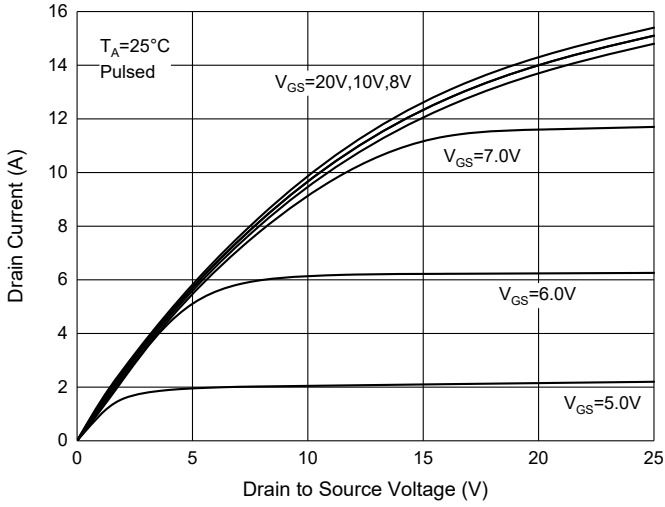


Fig. 2 - Transfer Characteristics

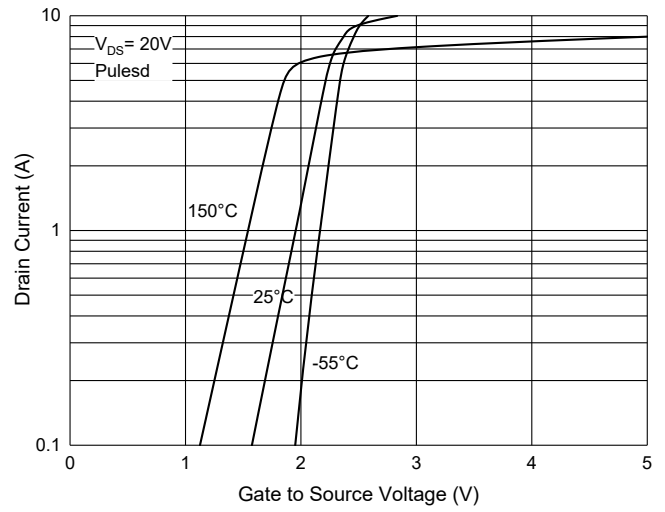


Fig. 3 - $R_{DS(ON)} - I_D$

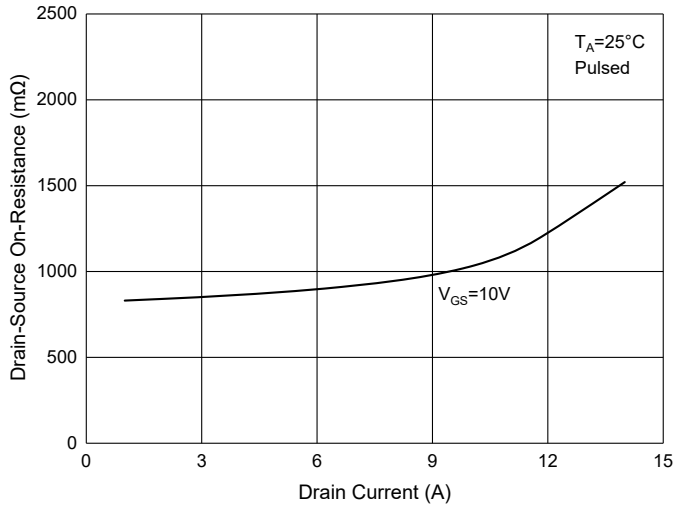


Fig. 4 - $R_{DS(ON)} - \text{Temperature}$

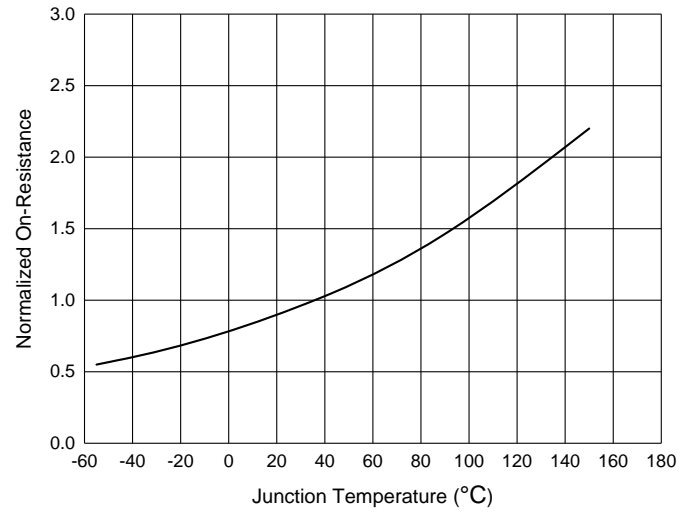


Fig. 5 - Gate Charge

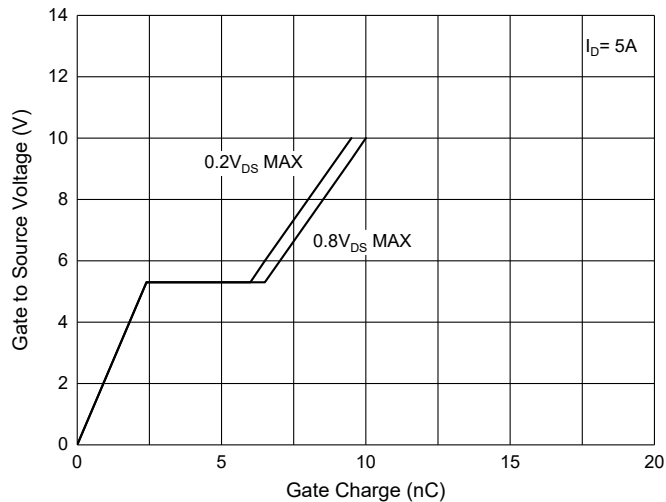
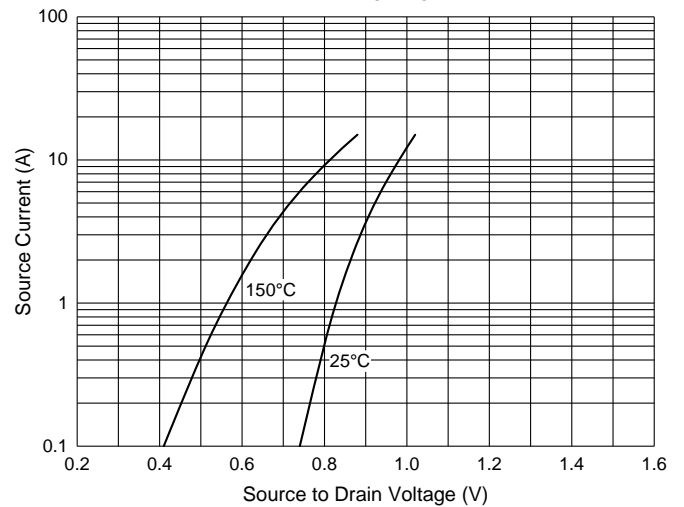


Fig. 6 - $I_S - V_{SD}$



Ordering Information

Device	Packing
Part Number-BP	Tube:80pcs/Tube;

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

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