Features

- Halogen Free. “Green” Device (Note 1)
- Very Low FOM RDS(on)×Qg
- Epoxy Meets UL 94 V-0 Flammability Rating
- Moisture Sensitivity Level 1

N-Channel Enhancement Mode Field Effect Transistor

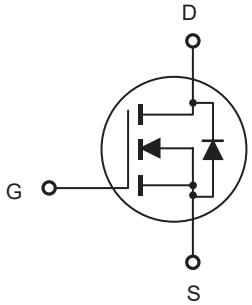
Maximum Ratings

- Operating Junction Temperature Range: -55°C to +150°C
- Storage Temperature Range: -55°C to +150°C
- Thermal Resistance: 62°C/W Junction to Ambient
- Thermal Resistance: 0.83°C/W Junction to Case

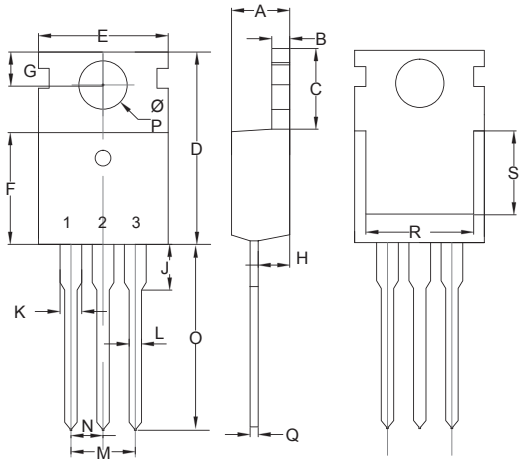
Parameter	Symbol	Rating	Unit
Drain -Source Voltage(V_{GS} = 0V)	V_{DS}	700	V
Gate -Source Volltage	V_{GS}	±30	V
Drain Current-Continuous	I_D	20	A
Drain Current-Pulse(Note 2)	I_{DM}	60	A
Power Dissipation(T_C = 25ºC)	P_D	151	W
Single Pulsed Avalanche Energy(Note 3)	E_{AS}	480	mJ
Avalanche Current(Note 2)	I_{AR}	4	A
Repetitive Avalanche Energy(Note 2)	E_{AR}	0.75	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.

Internal Structure



TO-220AB(H)



DIMENSIONS					
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 Noted)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Static Characteristics						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	V_{GS}=0V, I_D=250μA	700			V
Gate-Source Leakage Current	I_{GSS}	V_{GS} =±30V			±100	nA
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}=700V, V_{GS}=0V,T_J=25°C			1	μA
		V_{DS}=700V, V_{GS}=0V,T_J=150°C			100	
Gate-Source Threshold Voltage	$V_{GS(th)}$	V_{DS}=V_{GS}, I_D=250μA	2.5		4.0	V
Drain-Source On-Resistance (Note 4)	$R_{DS(on)}$	V_{GS}=10V, I_D=10A		0.19	0.21	Ω
Forward Tranconductance(Note 4)	g_{FS}	V_{DS}=10V, I_D=10A		18.8		S
Dynamic Characteristics						
Input Capacitance	C_{iss}	V_{DS}=50V,V_{GS}=0V,f=1MHz		2328		pF
Output Capacitance	C_{oss}			116		
Reverse Transfer Capacitance	C_{rss}			7		
Total Gate Charge	Q_g	V_{DD}=480V,V_{GS}=10V,I_D=20A		46		nC
Gate-Source Charge	Q_{gs}			11		
Gate-Drain Charge	Q_{gd}			13		
Turn-On Delay Time	$t_{d(on)}$	V_{DD} =300V, I_D=20A,R_G=25Ω		43		ns
Turn-On Rise Time	t_r			14		
Turn-Off Delay Time	$t_{d(off)}$			150		
Turn-Off Fall Time	t_f			7		
Drain-Source Body Diode Characteristics						
Continuous Body Diode Current	I_S	T_C=25°C			20.6	A
Pulsed Diode Forward Current	I_{SM}				70	
Body Diode Voltage	V_{SD}	T_J=25°C,I_{SD}=20A, V_{GS}=0V		0.95	1.2	V
Reverse Recovery Time	t_{rr}	V_R=560V, I_F=I_S,di_F/dt=100A/μs		410		ns
Reverse Recovery Charge	Q_{rr}			3.8		μC
Peak Reverse Recovery Current	I_{rrm}			35		A

Notes

2. Pulse Width limited by maximum junction temperature
3. I_{AS} = 4A, V_{DD} = 50V, R_G = 25Ω, Starting T_J = 25°C
4. Pulse Test: Pulse Width ≤ 300μs, Duty Cycle ≤ 1%

Curve Characteristics

Fig. 1 - Output Characteristics

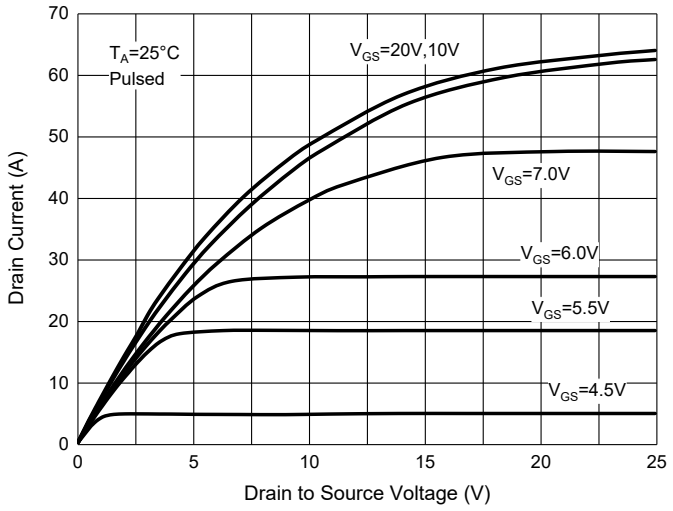


Fig. 2 - Transfer Characteristics

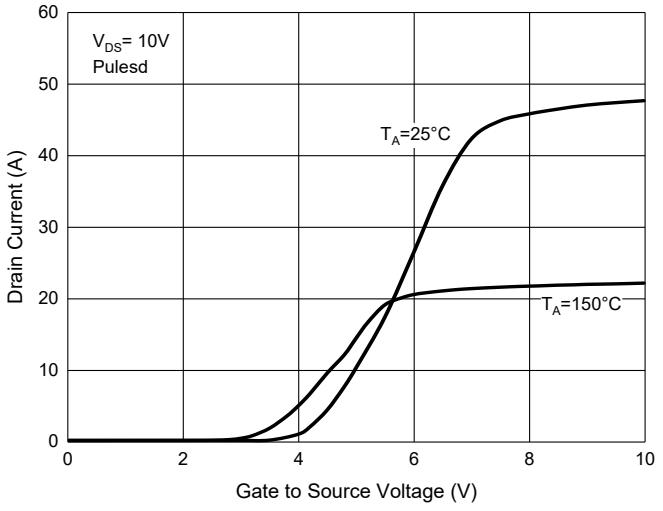


Fig. 3 - $R_{DS(ON)}$—I_D

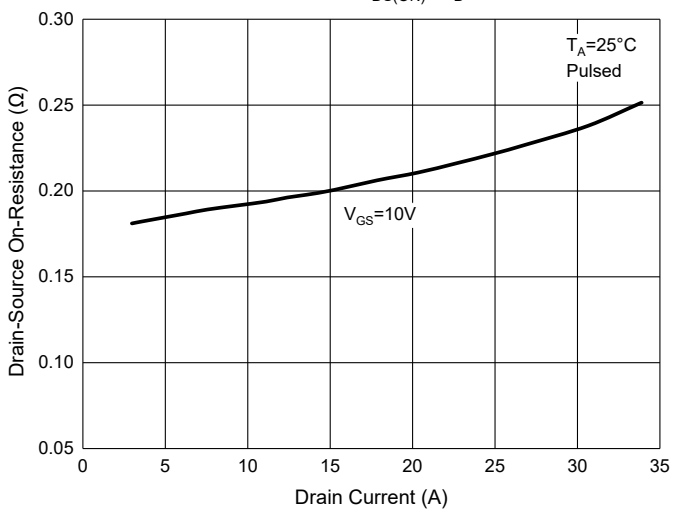


Fig. 4 - Capacitance Characteristics

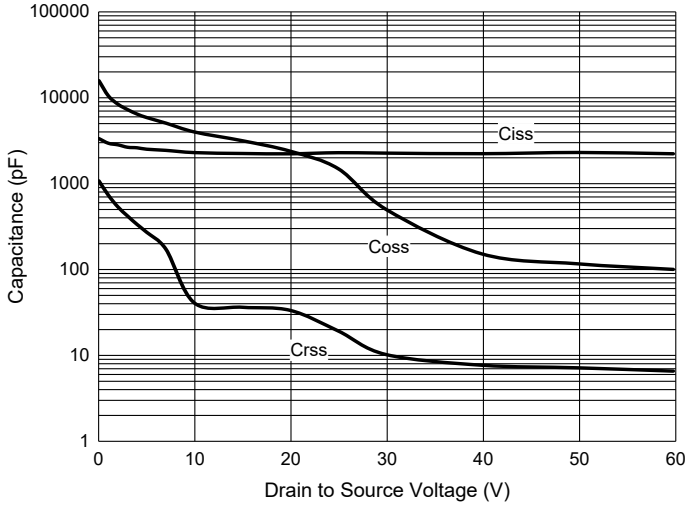


Fig. 5 - Gate Charg

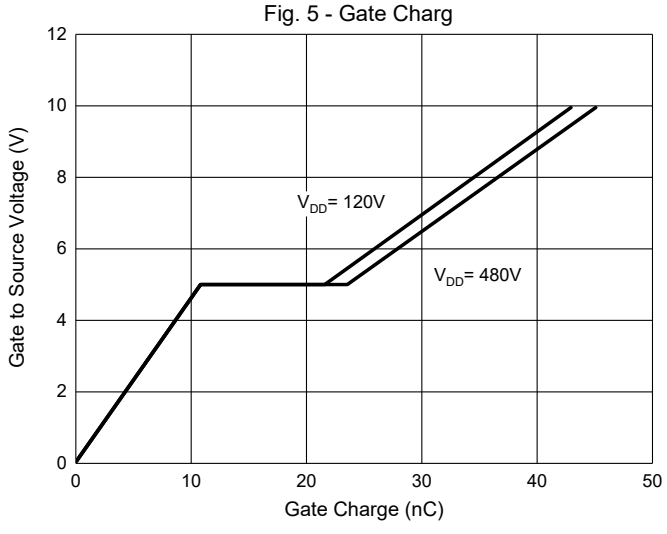
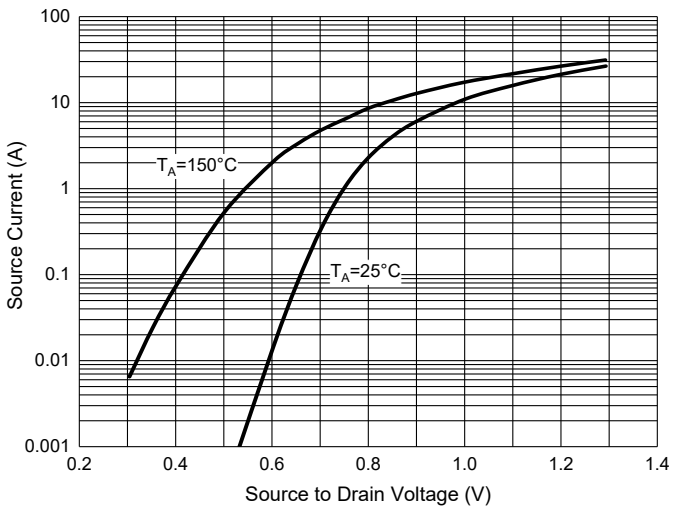


Fig. 6 - I_S—V_{SD}



Ordering Information

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

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