

Features

- Halogen Free. "Green" Device (Note 1)
- Very Low FOM $R_{DS(on)} \times Q_g$
- Epoxy Meets UL 94 V-0 Flammability Rating
- Moisture Sensitivity Level 1

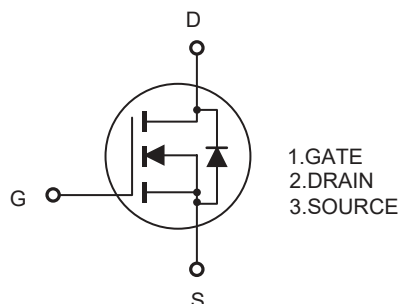
Maximum Ratings

- Operating Junction Temperature Range: -55°C to $+150^{\circ}\text{C}$
- Storage Temperature Range: -55°C to $+150^{\circ}\text{C}$
- Thermal Resistance: 62°C/W Junction to Ambient
- Thermal Resistance: 0.83°C/W Junction to Case

Parameter	Symbol	Rating	Unit
Drain -Source Voltage($V_{GS} = 0\text{V}$)	V_{DS}	700	V
Gate -Source Voltage	V_{GS}	± 30	V
Drain Current-Continuous	I_D	20	A
Drain Current-Pulse ^(Note 2)	I_{DM}	60	A
Power Dissipation($T_C = 25^{\circ}\text{C}$)	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

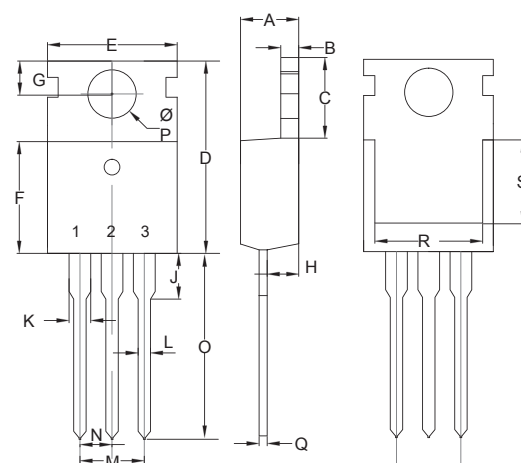
Note: 1. Halogen free "Green" products are defined as those which contain <900ppm bromine, <900ppm chlorine (<1500ppm total Br + Cl) and <1000ppm antimony compounds.

Internal Structure



N-Channel Enhancement Mode Field Effect Transistor

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 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

- Pulse Width limited by maximum junction temperature
- $I_{AS} = 4A, V_{DD} = 50V, R_G = 25\Omega$, Starting $T_J = 25^\circ C$
- Pulse Test: Pulse Width $\leq 300\mu s$, Duty Cycle $\leq 1\%$

Curve Characteristics

Fig. 1 - Output Characteristics

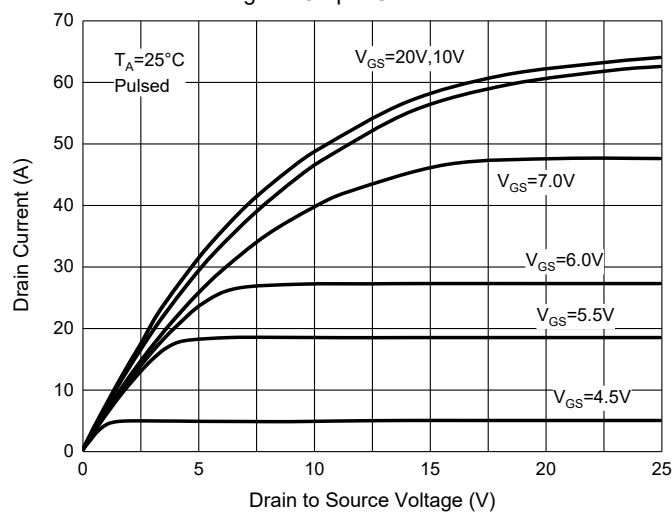


Fig. 2 - Transfer Characteristics

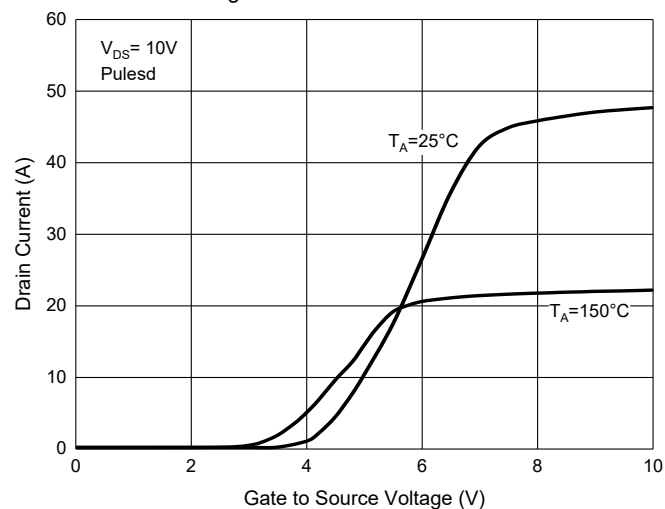


Fig. 3 - $R_{DS(ON)} - I_D$

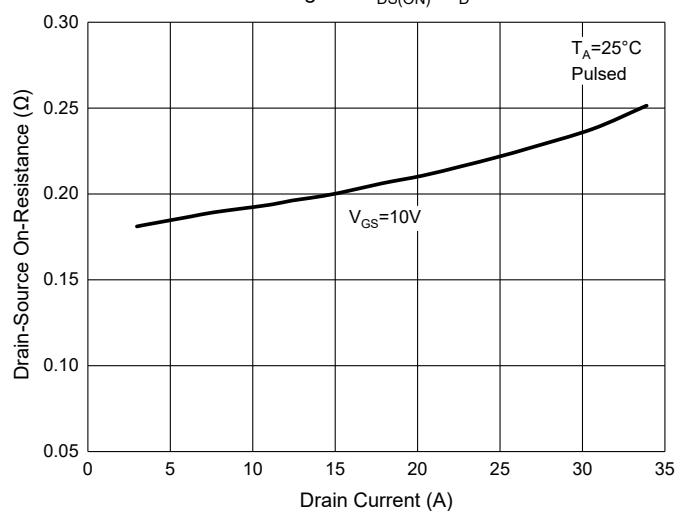


Fig. 4 - Capacitance Characteristics

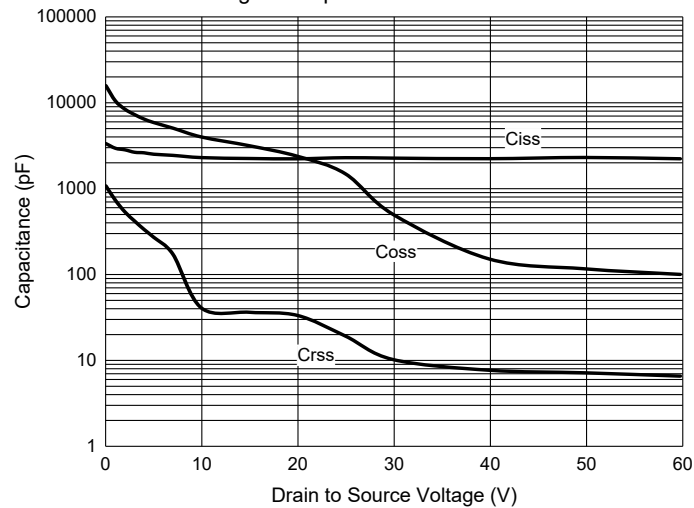


Fig. 5 - Gate Charge

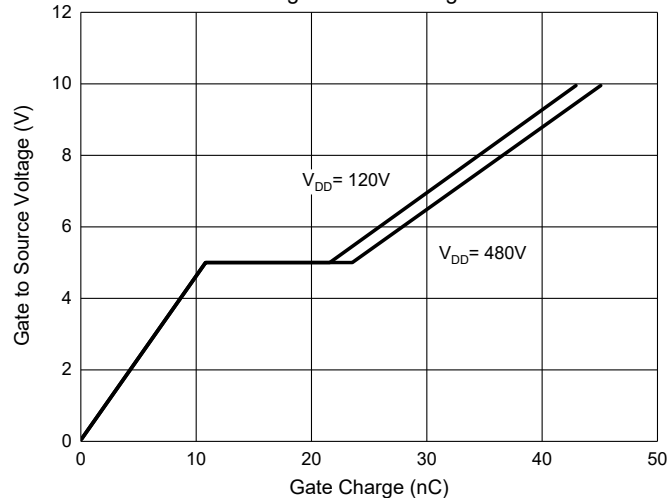
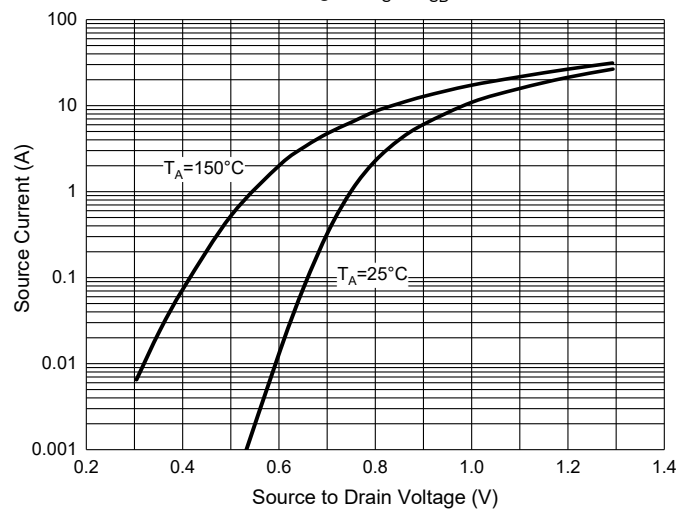


Fig. 6 - $I_S - V_{SD}$



Ordering Information

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

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