

Features

- Low RDS(on) & FOM
- Extremely Low Switching Loss
- Excellent Stability and Uniformity
- Fast Switching and Soft Recovery
- Lead Free Finish/RoHS Compliant ("P" Suffix Designates RoHS Compliant. See Ordering Information)
- Halogen Free Available Upon Request By Adding Suffix "-HF"
- Epoxy Meets UL 94 V-0 Flammability Rating
- Moisture Sensitivity Level 1

Maximum Ratings

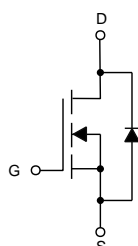
- Operating Junction Temperature Range: -55°C to +150°C
- Storage Temperature Range: -55°C to +150°C
- Thermal Resistance: 62°C/W Junction to Ambient⁽¹⁾
- Thermal Resistance: 0.65°C/W Junction to Case

Parameter	Symbol	Value
Drain-source Voltage	V_{DS}	100V
Gate-source Voltage	V_{GS}	±20V
Continuous Drain Current ⁽²⁾ , $T_C=25^\circ\text{C}$	I_D	130A
Pulsed Drain Current ⁽³⁾ , $T_C=25^\circ\text{C}$	$I_{D,pluse}$	390A
Power Dissipation ⁽⁴⁾ , $T_C=25^\circ\text{C}$	P_D	192W
Single Pulsed Avalanche Energy ⁽⁵⁾	E_{AS}	500mJ

Note:

1. The Value of $R_{\theta JA}$ is Measured with the Device Mounted on 1 in² FR-4 Board with 2oz. Copper, In a Still Air Environment with $T_A=25^\circ\text{C}$.
2. Calculated Continuous Current Based on Maximum Allowable Junction Temperature.
3. Repetitive Rating: Pulse Width Limited By Max. Junction Temperature.
4. P_d is Based on Max. Junction Temperature, Using Junction-Case Thermal Resistance.
5. $V_{DD}=50\text{V}$, $R_G=25\Omega$, $L=0.5\text{mH}$, Starting $T_J=25^\circ\text{C}$.

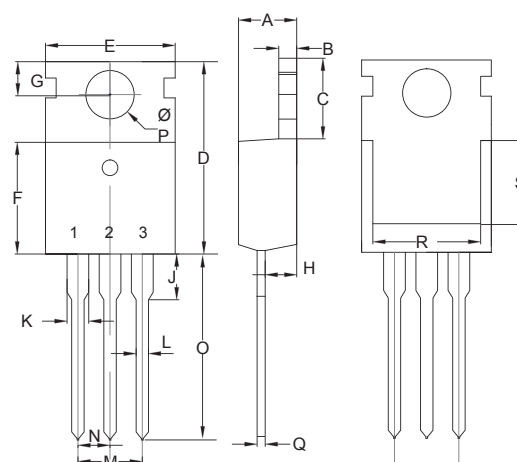
Internal Structure



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	----	

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Static Characteristics						
Drain-Source Breakdown Voltage	V _{(BR)DSS}	V _{GS} =0V, I _D =250μA	100			V
Gate-Threshold Voltage	V _{GS(th)}	V _{DS} =V _{GS} , I _D =250μA	1.2	2	4	V
Gate-Body Leakage Current	I _{GSS}	V _{DS} =0V, V _{GS} =±20V			±100	nA
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} =100V, V _{GS} =0V			1	μA
Drain-Source On-Resistance	R _{DS(on)}	V _{GS} =10V, I _D =60A		4.0	4.6	mΩ
Dynamic Characteristics						
Drain-Source On-Voltage	C _{iss}	V _{GS} =0V, V _{DS} =50V, f=1MHz		6124.6		pF
Output Capacitance	C _{oss}			792.3		pF
Reverse Transfer Capacitance	C _{rss}			15.1		pF
Turn-On Delay time	t _{d(on)}	V _{GS} =10V, V _{DS} =50V, R _G =2.2Ω, I _D =22 A		28.2		ns
Rise Time	t _r			7.5		ns
Turn-Off Delay Time	t _{d(off)}			81.9		ns
Fall Time	t _f			20.1		ns
Gate Charge Characteristics						
Total Gate Charge	Q _g	I _D =22A, V _{DS} =50V, V _{GS} =10V		101.6		nC
Gate-Source Charge	Q _{gs}			20.6		nC
Gate-Drain Charge	Q _{gd}			28.7		nC
Gate Plateau Voltage	V _{plateau}			4.2		V
Body Diode Characteristics						
Diode Forward Current	I _S	V _{GS} <V _{th}			130	A
Pulsed Source Current	I _{SP}				390	A
Diode Forward Voltage	V _{SD}	I _S =20A, V _{GS} =0V			1.3	V
Reverse Recovery Time	t _{rr}	I _S =10 A, di/dt=100 A/μs		82.1		ns
Reverse Recovery Charge	Q _{rr}			248.4		nC
Peak Reverse Recovery Current	I _{rrm}			4.9		A

Curve Characteristics

Fig. 1 - Typical Output Characteristics

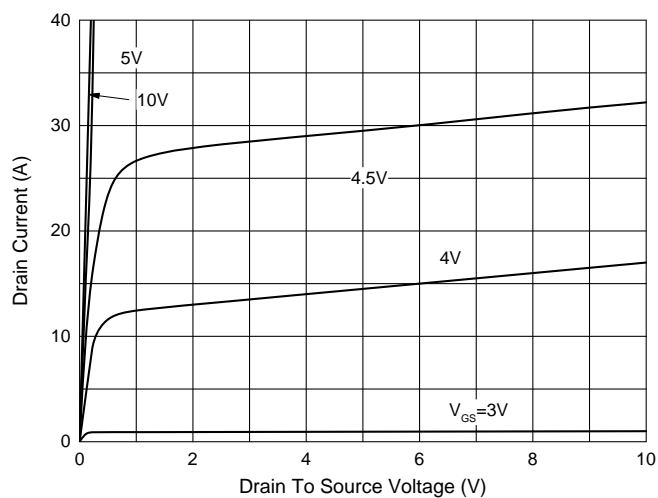


Fig. 2 - Transfer Characteristics

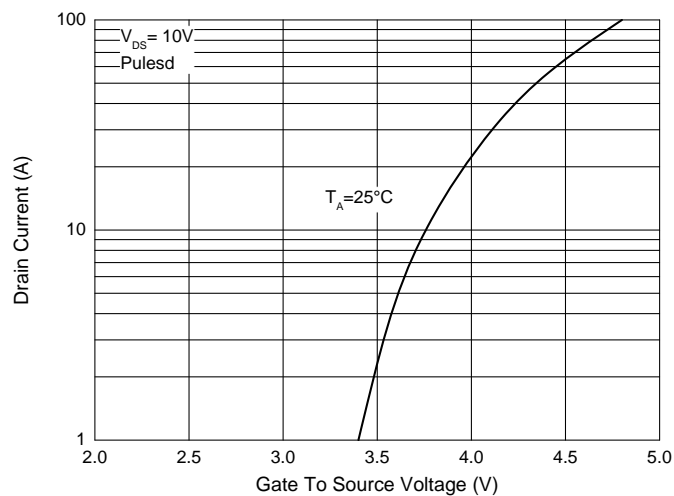


Fig. 3 - Capacitance Characteristics

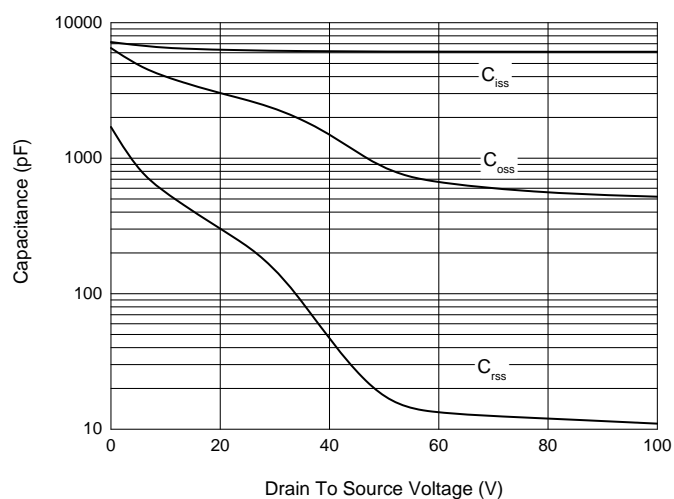


Fig. 4 - Total Gate Charge Characteristics

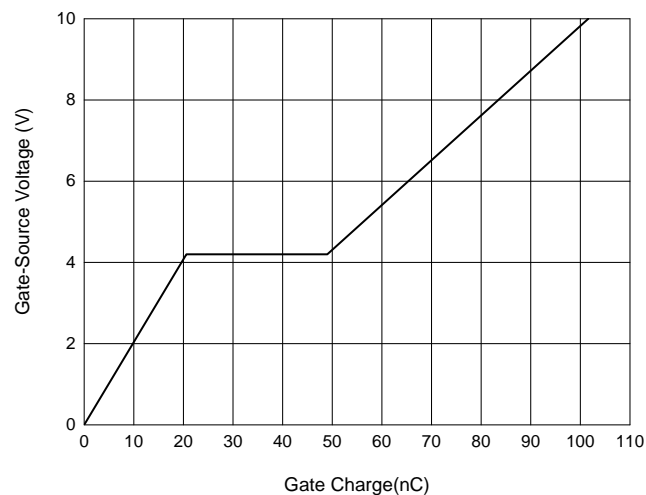


Fig. 5 - $I_S - V_{SD}$

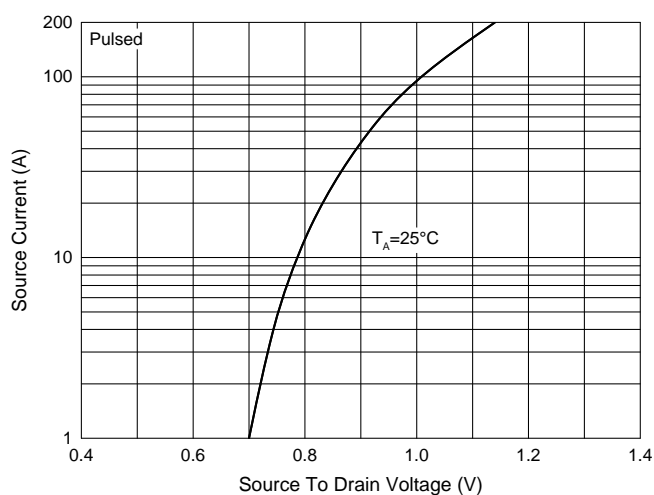
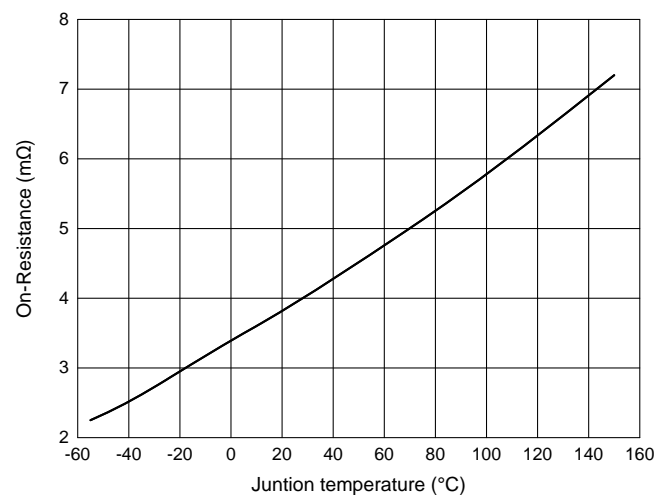


Fig. 6 - On-Resistance Characteristics



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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