Features

- Fast Switching
- Improved dv/dt Capability
- 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)

N-CHANNEL MOSFET

Maximum Ratings

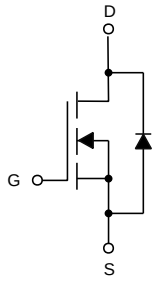
- Operating Junction Temperature Range : -55°C to +150°C
- Storage Temperature Range: -55°C to +150°C
- Thermal Resistance: 62.5°C/W Junction to Ambient
- Thermal Resistance: 5°C/W Junction to Case(Note 1)

Parameter	Symbol	Rating	Unit
Drain-Source Voltage	V_{DS}	800	V
Gate-Source Volltage	V_{GS}	±30	V
Continuous Drain Current	I_D	5	A
Pulsed Drain Current (Note1)	I_{DM}	20	A
Single Pulse Avalanche Energy (Note 2)	E_{AS}	151	mJ
Avalanche Current (Note1)	I_{AS}	5.5	A
Repetitive Avalanche Energy (Note1)	E_{AR}	90	mJ
Total Power Dissipation	P_D	25	W

Note: 1.Repetitive Rating: Pulse Width Limited by Maximum Junction Temperature.

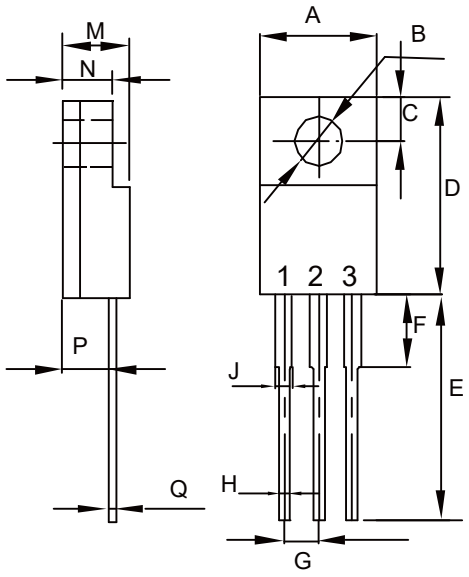
2.I_{AS}=3A, V_{DD}=50V, R_G=25 Ω, Starting T_J=25°C.

Internal Structure



1. Gate
2. Drain
3. Source

TO-220F



DIMENSIONS					
DIM	INCHES		MM		NOTE
	MIN	MAX	MIN	MAX	
A	0.392	0.421	9.96	10.70	
B	0.138		3.50		Φ
C	0.106		2.70		TYP.
D	0.567	0.642	14.40	16.30	
E	0.520		13.20		TYP.
F	---	0.177	---	4.50	
G	0.100		2.54		TYP.
H	0.020	0.035	0.50	0.90	
J	0.043	0.053	1.10	1.35	
M	0.169	0.201	4.30	5.10	
N	---	0.140	---	3.56	
P	0.083	0.126	2.10	3.20	
Q	0.020	0.032	0.50	0.80	

Electrical Characteristics @ 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	800			V
Gate-Source Leakage Current	I_{GSS}	V_{DS}=0V, V_{GS} =±30V			±100	nA
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}=800V, V_{GS}=0V			1	μA
		V_{DS}=640V, V_{GS}=0V, T_J=25°C			100	
Gate-Threshold Voltage	$V_{GS(th)}$	V_{DS}=V_{GS}, I_D=250μA	3		4	V
Drain-Source On-Resistance(Note 3)	$R_{DS(on)}$	V_{GS}=10V, I_D=2.5A		2.3	2.8	Ω
Dynamic Characteristics(Note 4)						
Input Capacitance	C_{iss}	V_{DS}=25V,V_{GS}=0V,f=1MHz		667		pF
Output Capacitance	C_{oss}			77		
Reverse Transfer Capacitance	C_{rss}			14		
Total Gate Charge	Q_g	V_{DD}=640V,V_{GS}=10V,I_D=5A		27		nC
Gate-Source Charge	Q_{gs}			3.5		
Gate-Drain Charge	Q_{gd}			13		
Turn-On Delay Time	$t_{d(on)}$	V_{DD} =400V, I_D=5A,R_G=25Ω		37		ns
Turn-On Rise Time	t_r			15		
Turn-Off Delay Time	$t_{d(off)}$			144		
Turn-Off Fall Time	t_f			41		
Drain-Source Body Diode Characteristics						
Continuous Body Diode Current	I_S	T_C=25°C			5	A
Pulsed Diode Forward Current	I_{SM}				20	
Body Diode Voltage	V_{SD}	I_{SD}=2.5A, V_{GS}=0V			1.4	V
Reverse Recovery Time	t_{rr}	V_{GS}=0V, I_S=5A,di_F/dt=100A/μs		1099		ns
Reverse Recovery Charge	Q_{rr}			3.2		μC

Note 3. Pulse Test : Pulse Width≤300μs, Duty Cycle ≤ 1%.

4. Guaranteed by Design, Not Subject to Production Testing.

Curve Characteristics

Fig. 1 - Typical Output Characteristics

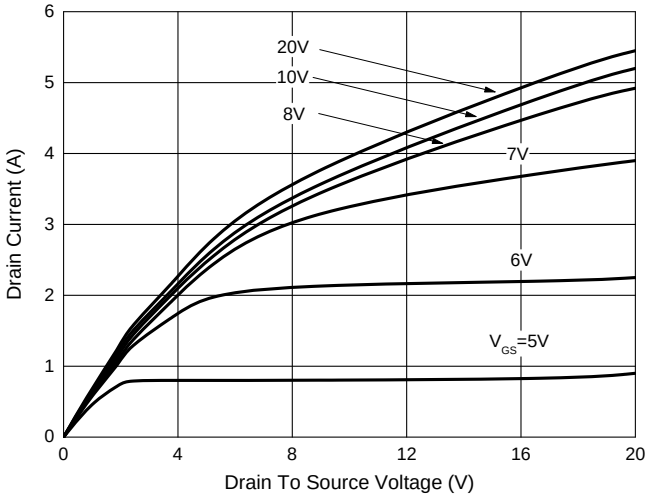


Fig. 2 - Transfer Characteristics

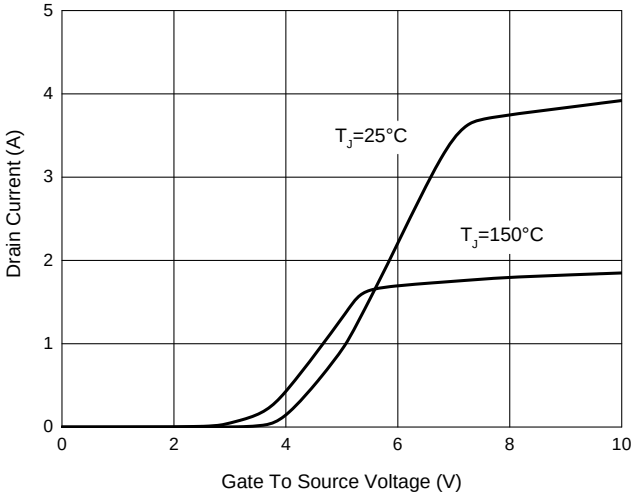


Fig. 3 - Capacitance Characteristics

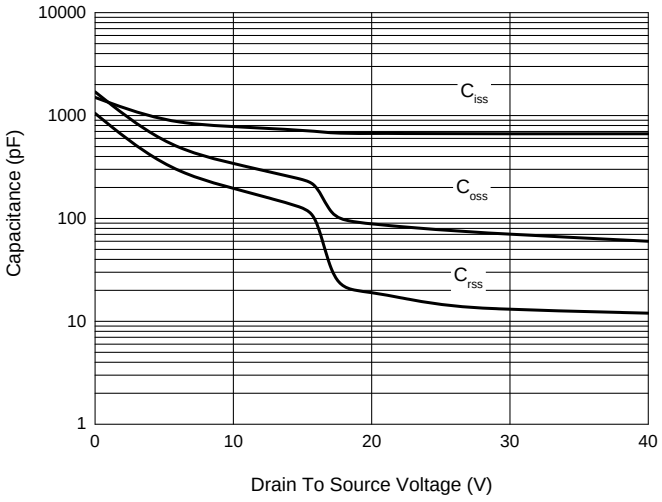


Fig. 4 - Gate Charge Characteristics

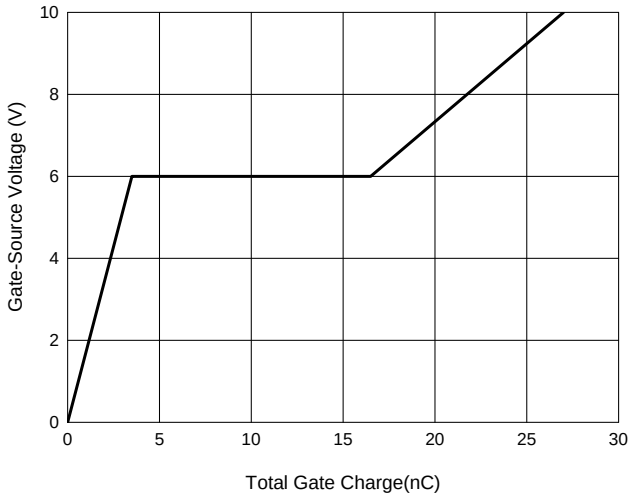


Fig. 5 - I_S—V_{SD}

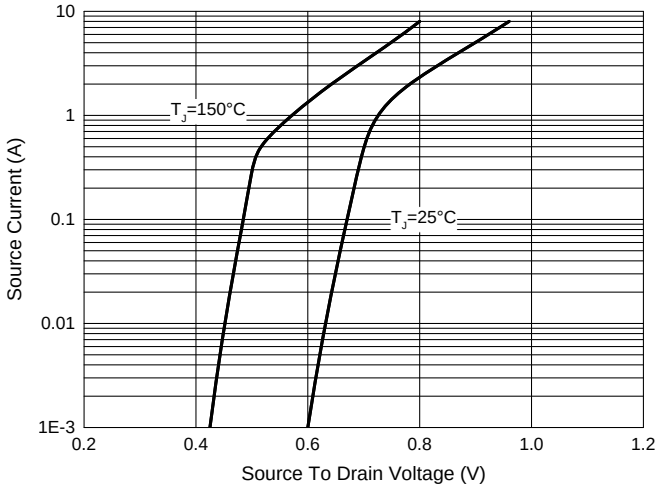
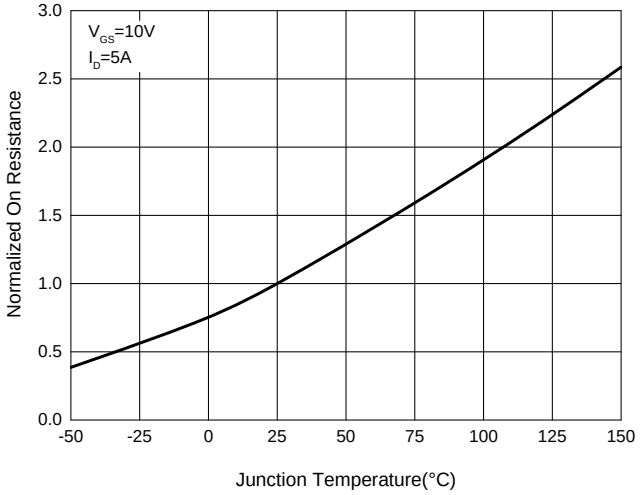


Fig. 6 - Normalized On Resistance Characteristics



Ordering Information

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

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