Features

- Very Low FOM $R_{DS(on)}$×Q_g
- Epoxy Meets UL 94 V-0 Flammability Rating
- Halogen Free Available Upon Request By Adding Suffix "-HF"
- Lead Free Finish/RoHS Compliant ("P" Suffix Designates RoHS Compliant. See Ordering Information)

N-CHANNEL Super-Junction Power MOSFET

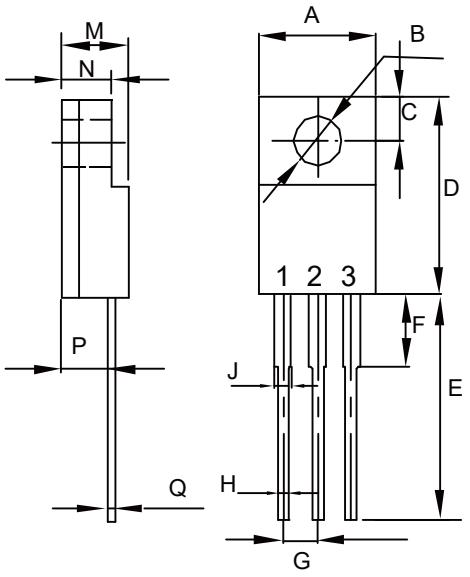
Maximum Ratings

- Operating Junction Temperature Range : -55°C to +150°C
- Storage Temperature Range: -55°C to +150°C
- Thermal Resistance: 34°C/W Junction to Ambient
- Thermal Resistance: 1.4°C/W Junction to Case

Parameter		Symbol	Rating	Unit
Drain-Source Voltage		V_{DS}	900	V
Gate-Source Volltage		V_{GS}	±30	V
Continuous Drain Current	T_C=25°C	I_D	8.0	A
	T_C=100°C		5.0	
Pulsed Drain Current (Note 1)		I_{DM}	32	A
Single Pulse Avalanche Energy		E_{AS}	68	mJ
Total Power Dissipation	T_C=25°C	P_D	113	W

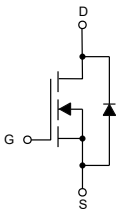
Note1. Repetitive Rating: Pulse Width Limited by Maximum Junction Temperature.

TO-220F

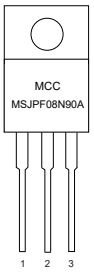


DIMENSIONS					
DIM	INCHES		MM		NOTE
	MIN	MAX	MIN	MAX	
A	0.392	0.421	9.96	10.70	
B	0.138		3.50		Φ
C	0.106		2.70		TYP.
D	0.567	0.642	14.40	16.30	
E	0.520		13.20		TYP.
F	---	0.177	---	4.50	
G	0.100		2.54		TYP.
H	0.020	0.035	0.50	0.90	
J	0.043	0.053	1.10	1.35	
M	0.169	0.201	4.30	5.10	
N	---	0.140	---	3.56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

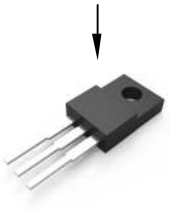
Internal Structure and Marking Code



1. Gate
2. Drain
3. Source



Plastic



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	900			V
Gate-Source Leakage Current	I_{GSS}	V_{DS}=0V, V_{GS} =±30V			±100	nA
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}=900V, V_{GS}=0V			1	μA
Gate-Threshold Voltage	$V_{GS(th)}$	V_{DS}=V_{GS}, I_D=250μA	2	3	4	V
Drain-Source On-Resistance(Note 2)	$R_{DS(on)}$	V_{GS}=10V, I_D=2.5A		1.05	1.3	Ω
Gate resistance	R_G	V_{GS}=0V,f=1MHz		2.3		Ω
Dynamic Characteristics(Note 3)						
Input Capacitance	C_{iss}	V_{DS}=25V,V_{GS}=0V,f=1MHz		474		pF
Output Capacitance	C_{oss}			438		
Reverse Transfer Capacitance	C_{rss}			14		
Total Gate Charge	Q_g	V_{DD}=720V,V_{GS}=10V,I_D=5A		13.6		nC
Gate-Source Charge	Q_{gs}			3.4		
Gate-Drain Charge	Q_{gd}			5.8		
Turn-On Delay Time	$t_{d(on)}$	V_{DD} =450V, I_D=5A,R_G=25Ω, V_{GS} =10V		14		ns
Turn-On Rise Time	t_r			23		
Turn-Off Delay Time	$t_{d(off)}$			44		
Turn-Off Fall Time	t_f			21		
Drain-Source Body Diode Characteristics						
Continuous Body Diode Current	I_S	T_C=25°C			8	A
Body Diode Voltage	V_{SD}	I_{SD}=8A, V_{GS}=0V			1.4	V
Reverse Recovery Time	t_{rr}	V_{DD}=100V, I_S=5A,di_F/dt=100A/μs		486		ns
Reverse Recovery Charge	Q_{rr}			2.5		μC
Peak Reverse Recovery Current	I_{rrm}			10.2		A

Note 2. Pulse Test : Pulse Width≤300μs, Duty Cycle ≤ 1%.

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

Fig. 1 - Typical Output Characteristics

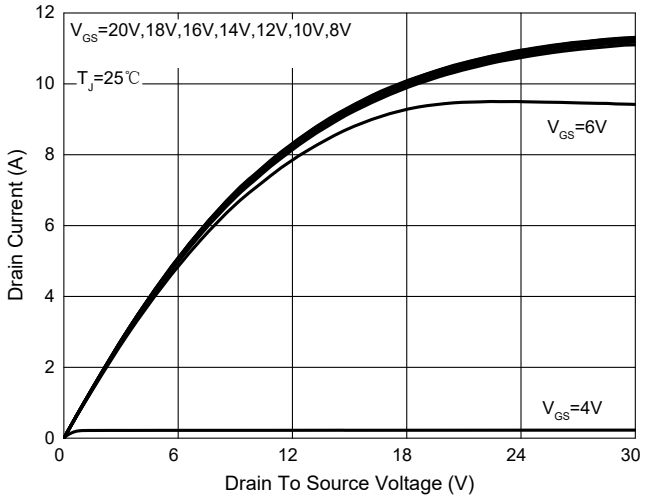


Fig. 2 - Transfer Characterristics

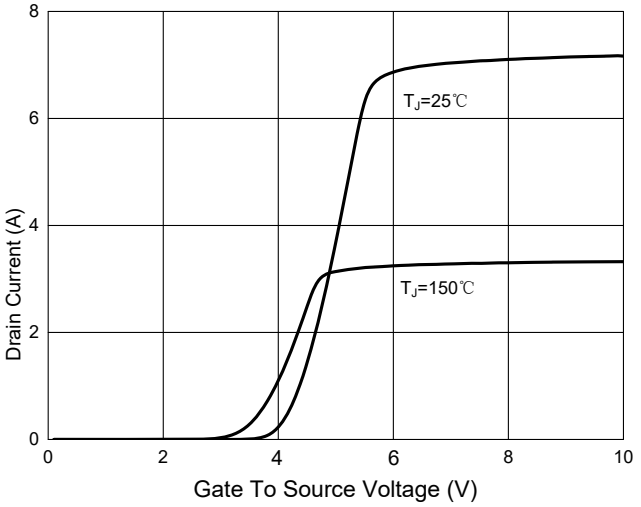


Fig. 3 - $R_{DS(ON)}$—I_D

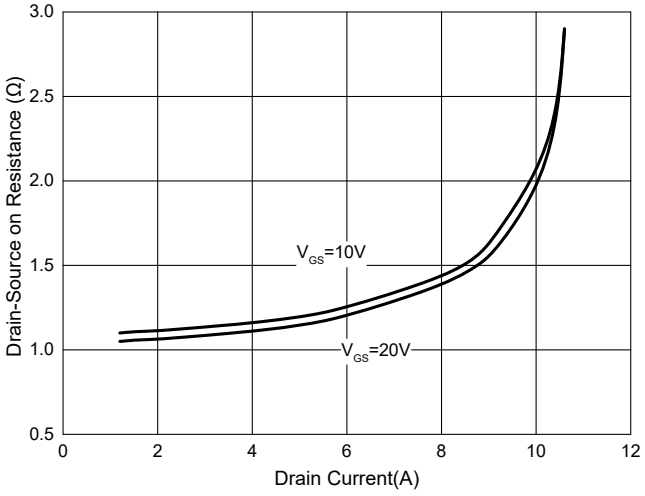


Fig. 4 - Normalized On Resistance Characteristics

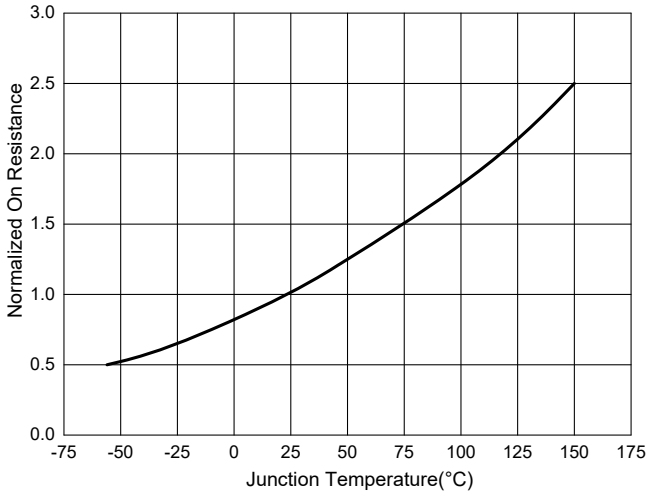


Fig. 5 - Gate Charge

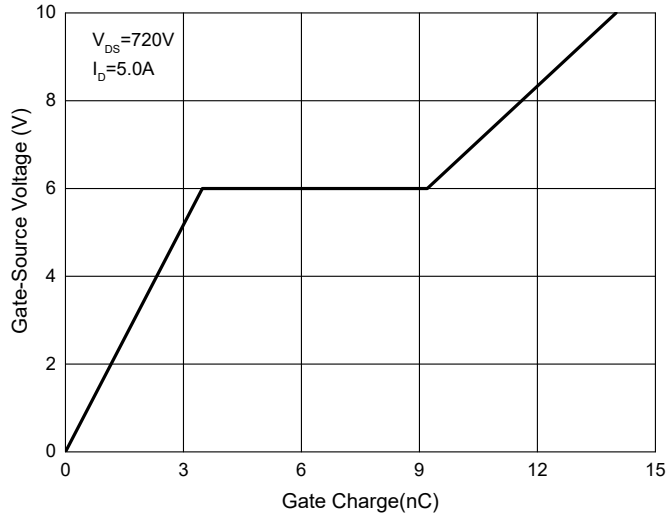


Fig. 6 - I_S—V_{SD}

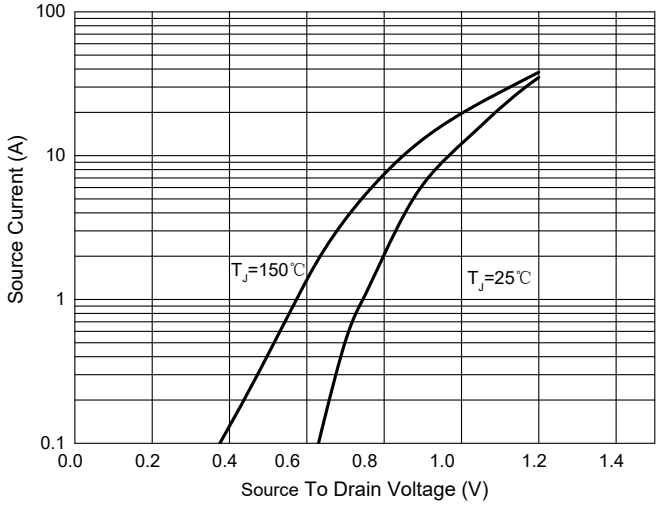


Fig. 7 - Capacitance Characteristics

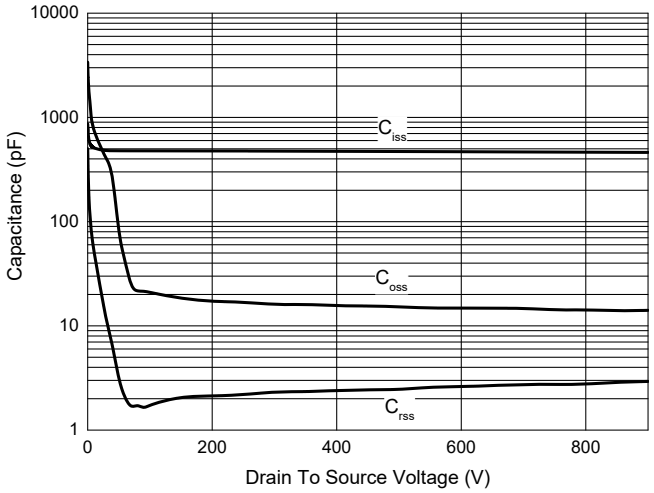


Fig. 8 - Safe Operation Area

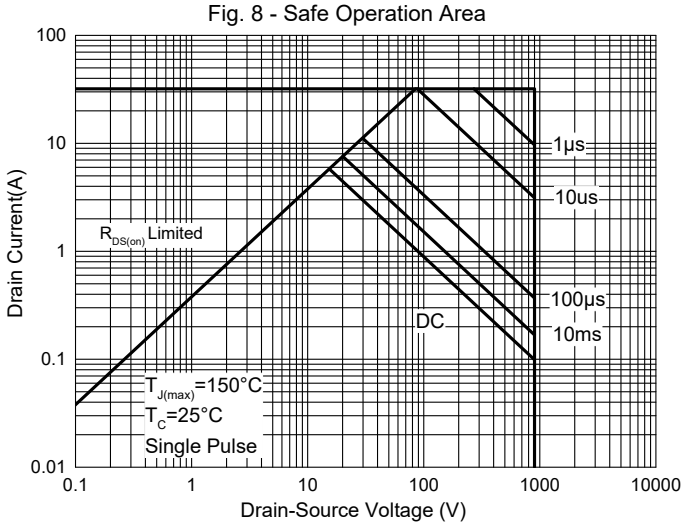
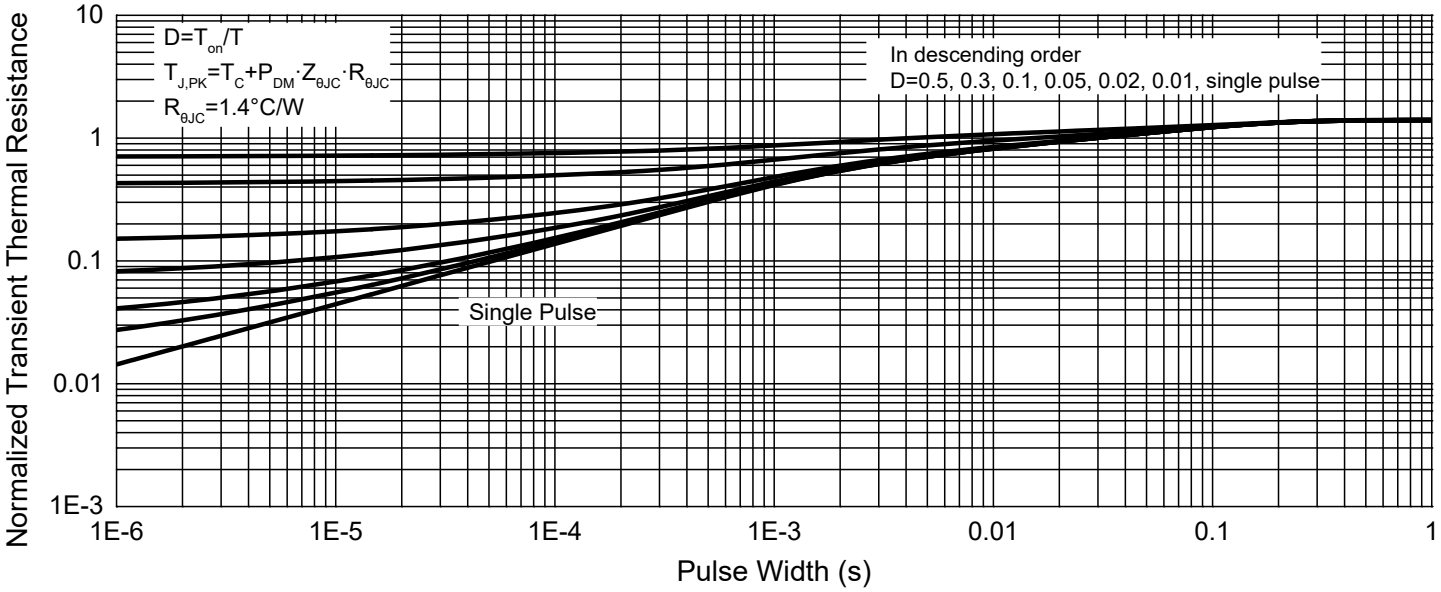


Fig. 9 - Normalized Transient Thermal Impedance



Ordering Information

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

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