

Features

- Very Low FOM $R_{DS(on)} \times Q_g$
- 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)

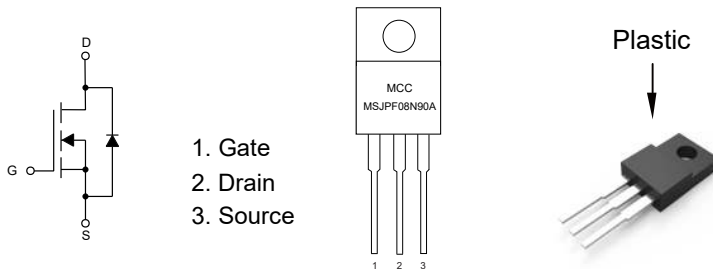
Maximum Ratings

- 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 Voltage	V_{GS}	±30	V
Continuous Drain Current	I_D	$T_C=25^\circ\text{C}$	8.0
		$T_C=100^\circ\text{C}$	5.0
Pulsed Drain Current (Note 1)	I_{DM}	32	A
Single Pulse Avalanche Energy	E_{AS}	68	mJ
Total Power Dissipation	$T_C=25^\circ\text{C}$	P_D	113
			W

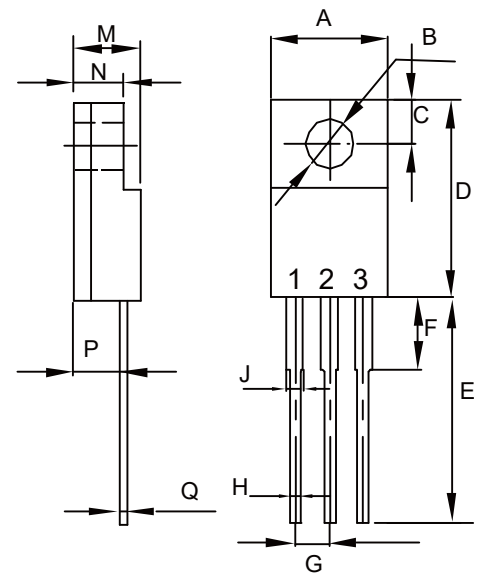
Note1. Repetitive Rating: Pulse Width Limited by Maximum Junction Temperature.

Internal Structure and Marking Code



N-CHANNEL Super-Junction Power MOSFET

TO-220F



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	$V_{(BR)DSS}$	$V_{GS}=0V, I_D=250\mu A$	900			V
Gate-Source Leakage Current	I_{GSS}	$V_{DS}=0V, V_{GS}=\pm 30V$			± 100	nA
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS}=900V, V_{GS}=0V$			1	μA
Gate-Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=250\mu A$	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	$t_{d(on)}$	$V_{DD}=450V, I_D=5A, R_G=25\Omega, V_{GS}=10V$		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	$T_C=25^\circ C$			8	A
Body Diode Voltage	V_{SD}	$I_{SD}=8A, V_{GS}=0V$			1.4	V
Reverse Recovery Time	t_{rr}	$V_{DD}=100V, I_S=5A, di_F/dt=100A/\mu s$		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 $\leq 300\mu s$, Duty Cycle $\leq 1\%$.

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

Fig. 1 - Typical Output Characteristics

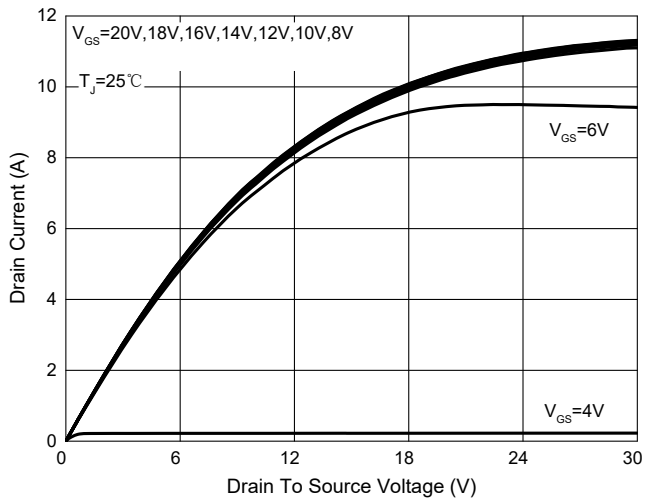


Fig. 2 - Transfer Characteristics

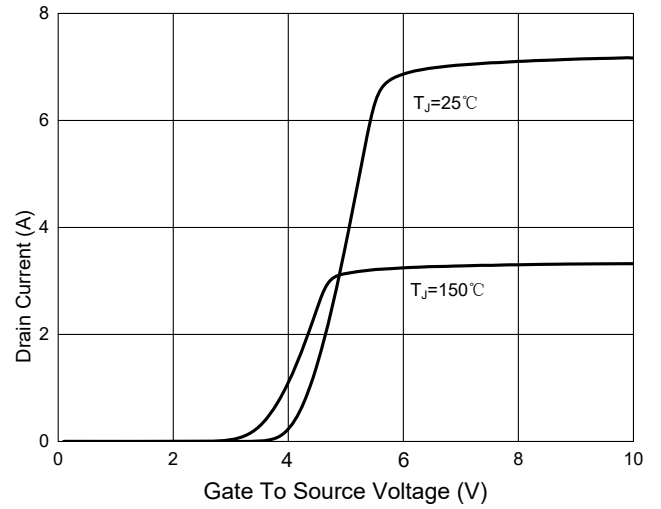


Fig. 3 - $R_{DS(ON)} - I_D$

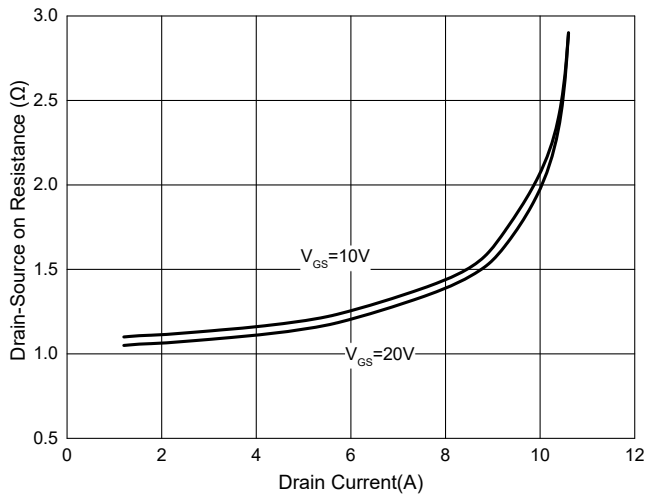


Fig. 4 - Normalized On Resistance Characteristics

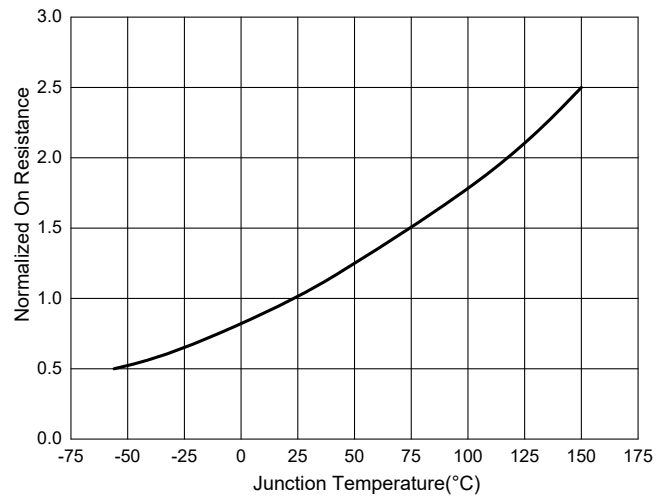


Fig. 5 - Gate Charge

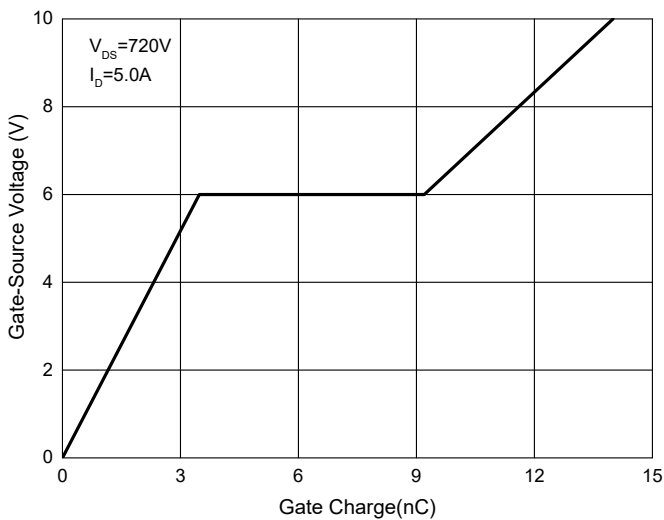


Fig. 6 - $I_S - V_{SD}$

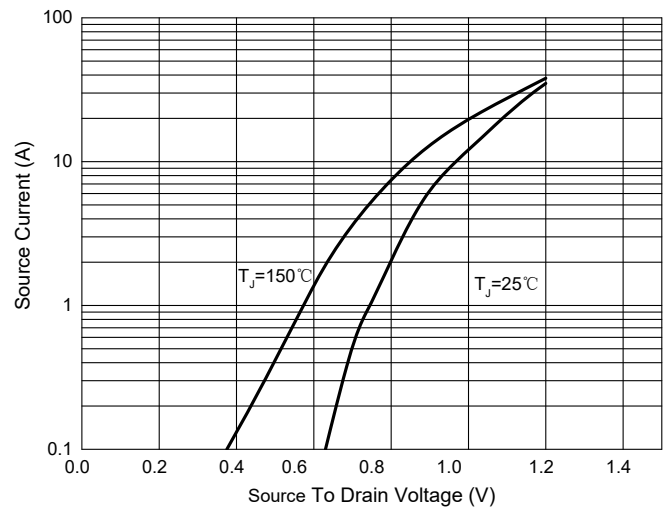


Fig. 7 - Capacitance Characteristics

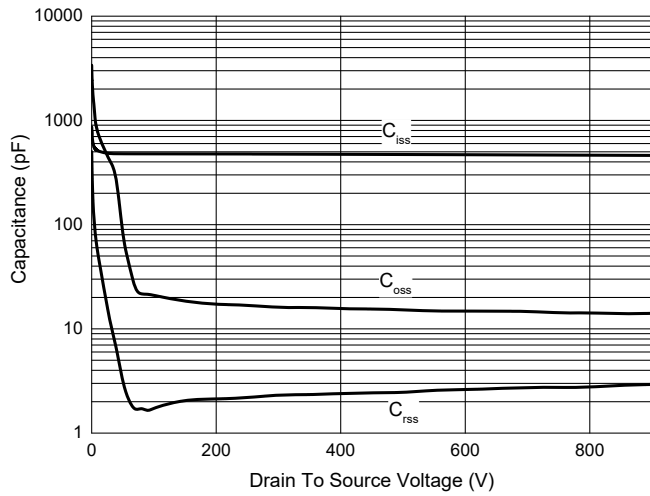


Fig. 8 - Safe Operation Area

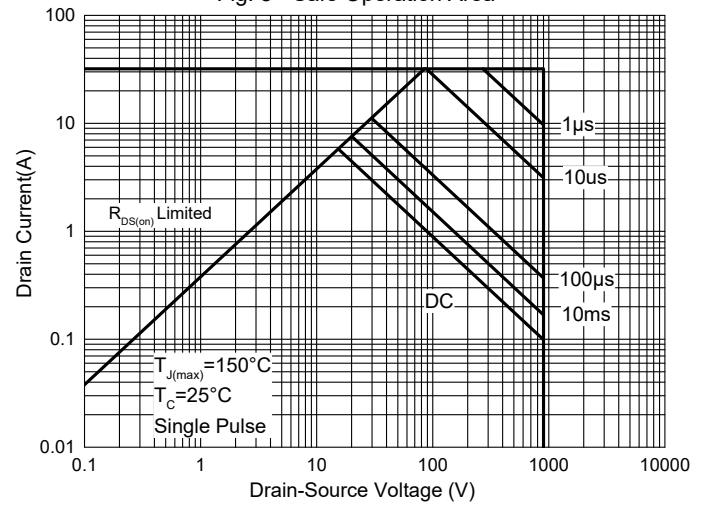
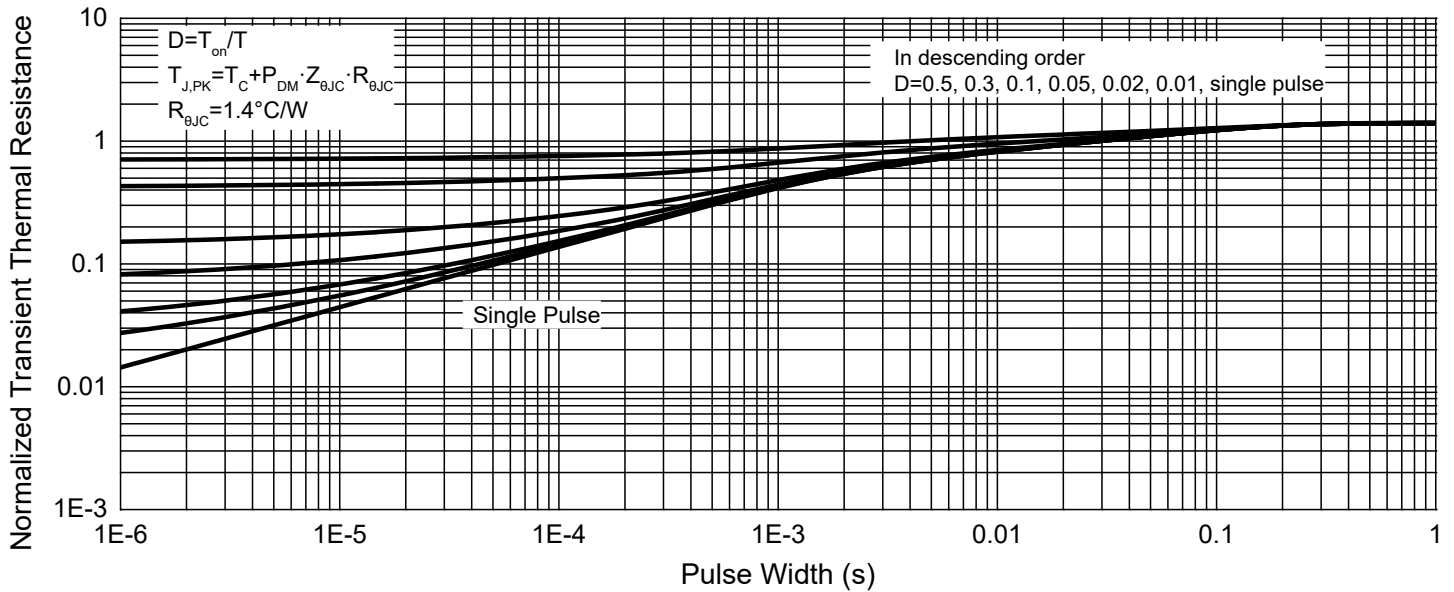


Fig. 9 - Normalized Transient Thermal Impedance



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

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