Features

- Split Gate Trench Mosfet Technology
- Lower $R_{DS(ON)}$
- Halogen Free ."Green" Device (Note 1)
- Epoxy Meets UL 94 V-0 Flammability Rating
- Lead Free Finish/RoHS Compliant ("P" Suffix Designates RoHS Compliant. See Ordering Information)

P-CHANNEL MOSFET

Maximum Ratings

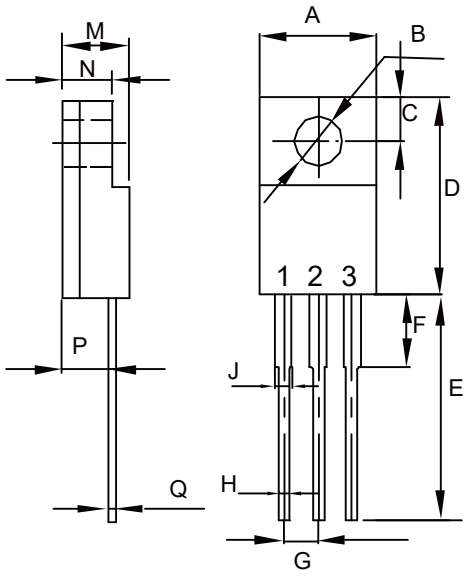
- Operating Junction Temperature Range: -55°C to +150°C
- Storage Temperature Range: -55°C to +150°C
- Thermal Resistance: 60°C/W Junction to Ambient (Note2)
- Thermal Resistance: 1.5°C/W Junction to Case

Parameter		Symbol	Rating	Unit
Drain -Source Voltage		V_{DS}	-60	V
Gate -Source Volltage		V_{GS}	±20	V
Drain Current-Continuous	T_C=25°C	I_D	-80	A
	T_C=100°C		-50	
Drain Current-Pulse(Note3)		I_{DM}	-320	A
Power Dissipation(Note4)		P_D	83	W
Single Pulsed Avalanche Energy(Note5)		E_{AS}	729	mJ

Note:

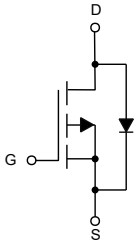
1. Halogen free "Green" products are defined as those which contain <900ppm bromine, <900ppm chlorine (<1500ppm total Br + Cl) and <1000ppm antimony compounds.
2. The value of $R_{\theta JA}$ is measured with the device mounted on 1in^2 FR-4 board with 2oz. Copper, in a still air environment with T_A =25°C.
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. T_J=25°C, V_{DD}=-40V, V_{GS}=-10V, R_G=25Ω, L=2mH.

TO-220F

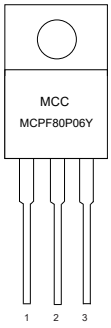


DIMENSIONS					
DIM	INCHES		MM		NOTE
	MIN	MAX	MIN	MAX	
A	0.381	0.406	9.70	10.30	
B	0.118	0.138	3.00	3.50	Φ
C	0.124	0.139	3.15	3.55	
D	0.610	0.634	15.50	16.10	
E	0.496	0.535	12.60	13.60	
F	0.134	0.150	3.40	3.80	
G	0.092	0.108	2.34	2.74	
H	0.027	0.035	0.70	0.90	
J	0.044	0.056	1.12	1.42	
M	0.173	0.193	4.40	4.90	
N	0.098	0.114	2.50	2.90	
P	0.085	0.100	2.15	2.55	
Q	0.016	0.024	0.40	0.60	

Internal Structure and Marking Code



1.GATE
2.DRAIN
3.SOURCE



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	-60			V
Gate-Source Leakage Current	I_{GSS}	V_{DS}=0V, V_{GS} =±20V			±100	nA
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}=-60V, V_{GS}=0V			-1	μA
Gate-Threshold Voltage	$V_{GS(th)}$	V_{DS}=V_{GS}, I_D=-250μA	-2.0	-2.6	-4	V
Drain-Source On-Resistance	$R_{DS(on)}$	V_{GS}=-10V, I_D=-20A		6.8	10	mΩ
		V_{GS}=-6V, I_D=-20A		7.9	13	
Gate Resistance	R_G	f=1MHz, Open drain		8.3		Ω
Diode Characteristics						
Continuous Body Diode Current	I_S				-80	A
Diode Forward Voltage	V_{SD}	V_{GS}=0V, I_S=-20A			-1.2	V
Reverse Recovery Time	t_{rr}	I_F=-40A, dI_F/dt=-100A/μs		60		ns
Reverse Recovery Charge	Q_{rr}			85		nC
Dynamic Characteristics						
Input Capacitance	C_{iss}	V_{DS}=-30V,V_{GS}=0V,f=1MHz		5415		pF
Output Capacitance	C_{oss}			936		
Reverse Transfer Capacitance	C_{rss}			36		
Total Gate Charge	Q_g	V_{DS}=-30V,V_{GS}=-10V,I_D=-20A		84		nC
Gate-Source Charge	Q_{gs}			20		
Gate-Drain Charge	Q_{gd}			18		
Turn-On Delay Time	$t_{d(on)}$	V_{DD}=-30V, V_{GS}=-10V, R_G=1.6Ω, I_D=-3A		14		ns
Turn-On Rise Time	t_r			26		
Turn-Off Delay Time	$t_{d(off)}$			137		
Turn-Off Fall Time	t_f			59		

Curve Characteristics

Fig.1 - Typical Output Characteristics

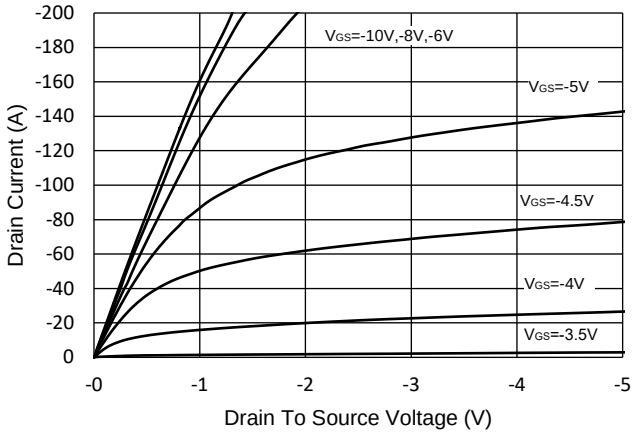


Fig.2 - Transfer Characteristic

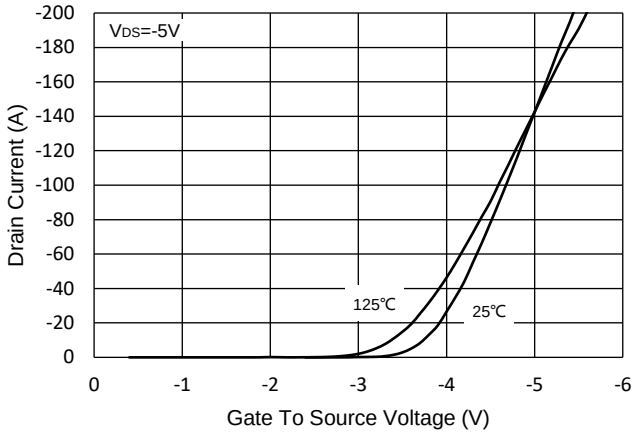


Fig.3 - $R_{DS(ON)}$ - V_{GS}

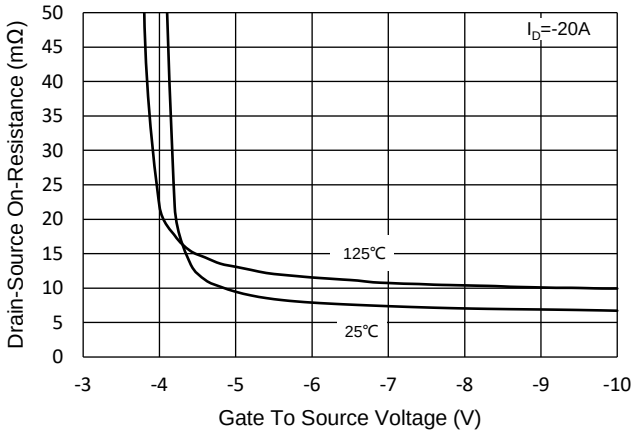


Fig.4 - $R_{DS(ON)}$ - I_D

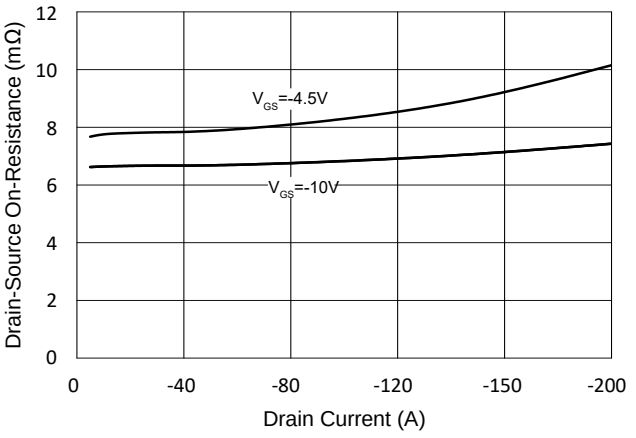


Fig.5 - Capacitance Characteristics

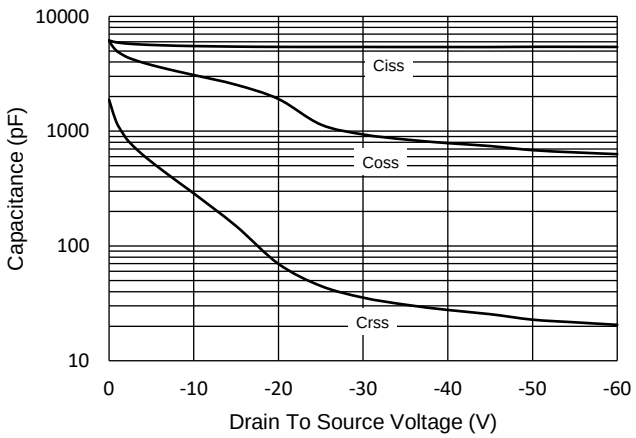
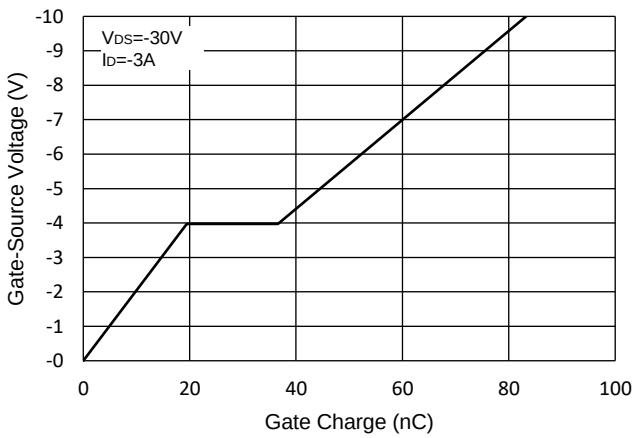


Fig.6 - Gate Charge



Curve Characteristics

Fig.7 - Normalized Threshold Voltage

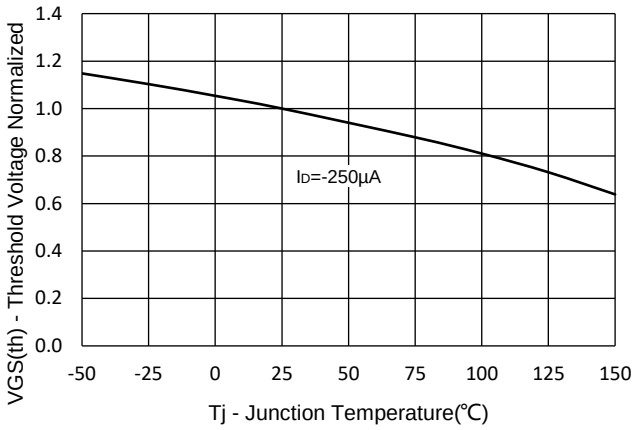


Fig.8 - Normalized On Resistance Characteristics

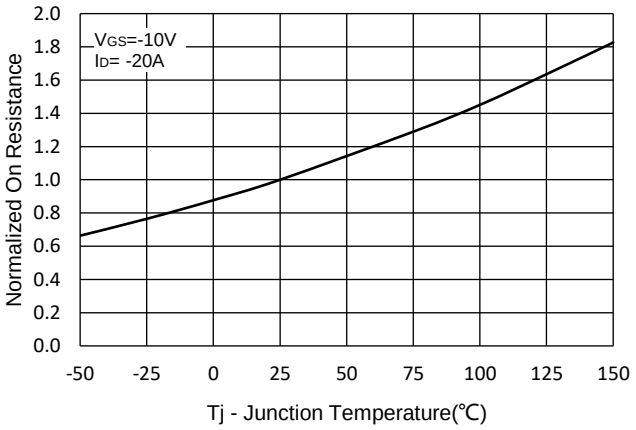


Fig.9 - I_S - V_{SD}

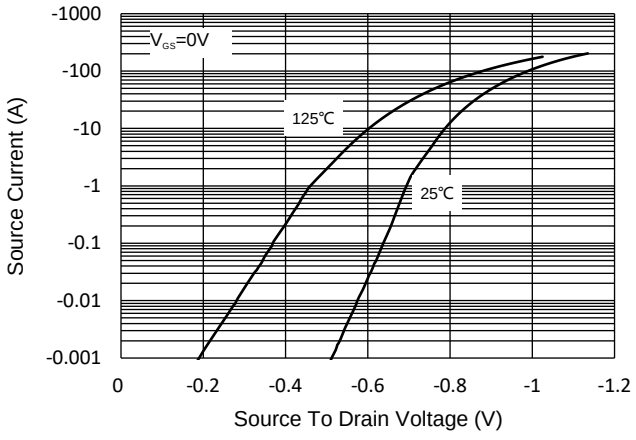


Fig.10 - Drain Current

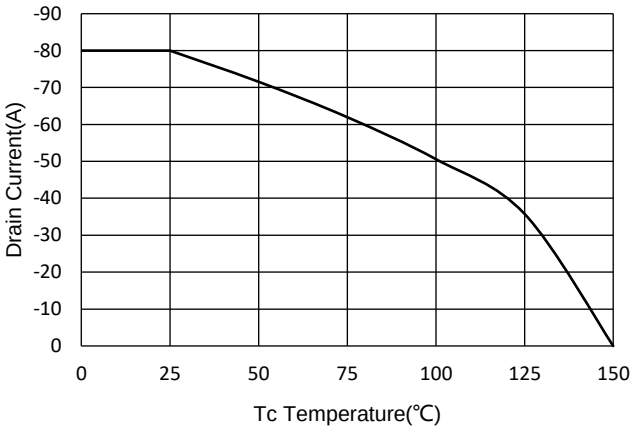
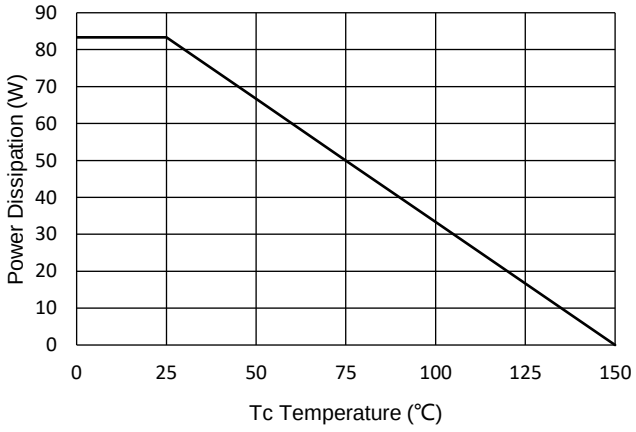


Fig.11 - PD Dissipation



Curve Characteristics

Fig.12 - Safe Operation Area

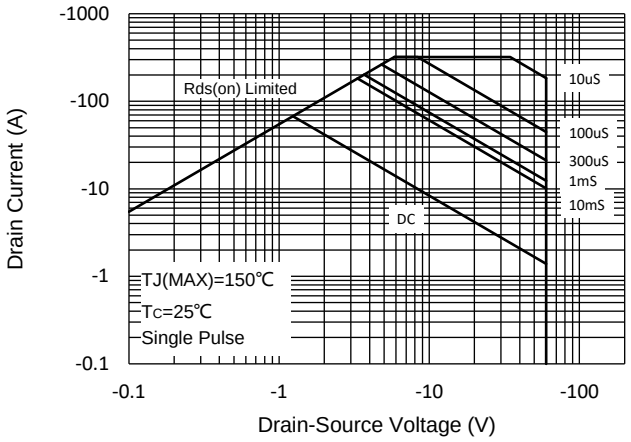
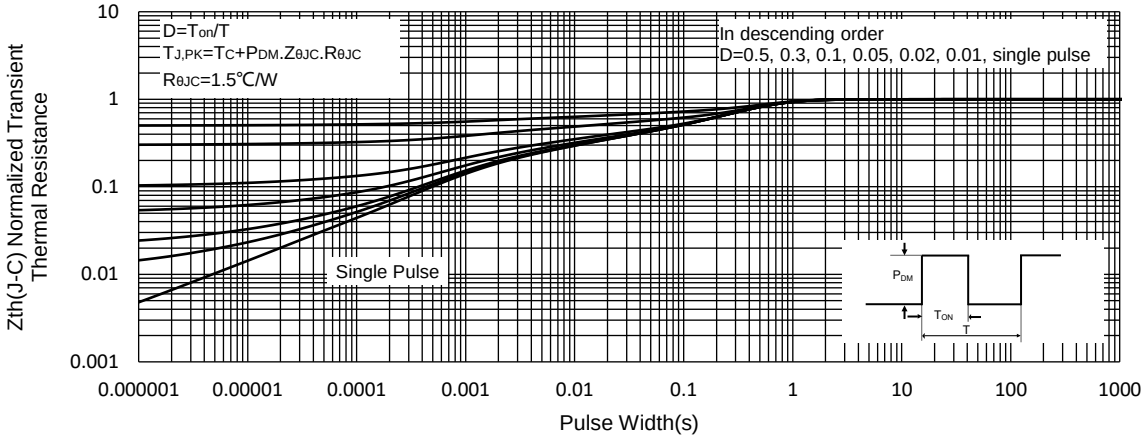


Fig.13 - Normalized Transient Thermal Impedance



Ordering Information

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

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