Features

- Split Gate Trench MOSFET Technology
- Excellent Package for Heat Dissipation
- High Density Cell Design for Low $R_{DS(on)}$
- Moisture Sensitivity Level 1
- 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)

N-CHANNEL MOSFET

Maximum Ratings

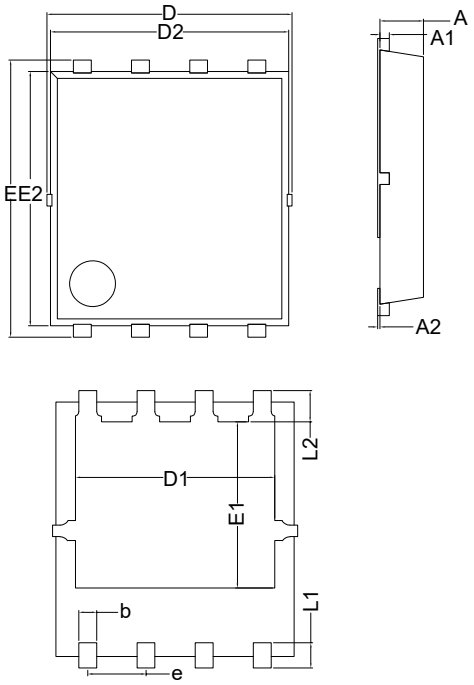
- Operating Junction Temperature Range : -55°C to +150°C
- Storage Temperature Range: -55°C to +150°C
- Thermal Resistance: 50°C/W Junction to Ambient(Note 2)
- Thermal Resistance: 0.85°C/W Junction to Case

Parameter		Symbol	Rating	Unit
Drain-Source Voltage		V_{DS}	60	V
Gate-Source Volltage		V_{GS}	±20	V
Continuous Drain Current	T_C=25°C	I_D	220	A
	T_C=100°C		139	
Pulsed Drain Current (Note 3)		I_{DM}	800	A
Total Power Dissipation (Note 4)		P_D	147	W
Avalanche Energy (Note 5)		E_{AS}	676	mJ

Note:

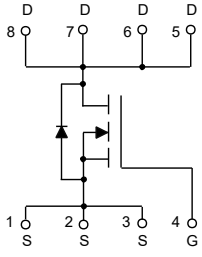
1. Halogen free "Green” products are defined as those which contain <900ppm bromine, <900ppm chlorine (<1500ppm total Br + Cl) and <1000ppm antimony compounds.
2. The value of $R_{\theta JA}$ is measured with the device mounted on 1in^2 FR-4 board with 2oz. Copper, in a still air environment with T_A =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}=30V, V_{GS}=10V, L=2mH.

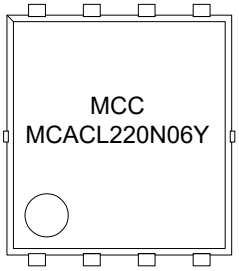
DFN5060-C



DIMENSIONS					
DIM	INCHES		MM		NOTE
	MIN	MAX	MIN	MAX	
D	0.203	0.218	5.15	5.55	
D2	0.201	0.209	5.10	5.30	
E	0.234	0.242	5.95	6.15	
E2	0.215	0.222	5.45	5.65	
A	0.033	0.041	0.85	1.05	
A1	0.008		0.203		BSC
A2	0.000	0.004	0.00	0.10	
D1	0.167	0.175	4.25	4.45	
E1	0.139	0.147	3.52	3.73	
L1	0.018	0.026	0.45	0.65	
L2	0.027		0.68		BSC
b	0.012	0.020	0.30	0.50	
e	0.050		1.27		BSC

Internal Structure and Marking Code





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	1	1.8	2.5	V
Drain-Source On-Resistance	$R_{DS(on)}$	V_{GS}=10V, I_D=20A		1.3	1.6	mΩ
		V_{GS}=4.5V, I_D=20A		1.7	2.4	
Gate Resistance	R_g	f=1 MHz, Open drain		1.5		Ω
Diode Characteristics						
Continuous Body Diode Current	I_S				220	A
Diode Forward Voltage	V_{SD}	V_{GS}=0V, I_S=110A			1.2	V
Reverse Recovery Time	t_{rr}	I_F=110A,di/dt=100A/μs		90		ns
Reverse Recovery Charge	Q_{rr}			143		nC
Dynamic Characteristics						
Input Capacitance	C_{iss}	V_{DS}=30V,V_{GS}=0V,f=1MHz		7500		pF
Output Capacitance	C_{oss}			1450		
Reverse Transfer Capacitance	C_{rss}			80		
Total Gate Charge	Q_g	V_{DS}=30V,V_{GS}=10V,I_D=110A		119		nC
Gate-Source Charge	Q_{gs}			25		
Gate-Drain Charge	Q_{gd}			20		
Turn-On Delay Time	$t_{d(on)}$	V_{GS}=10V,V_{DD}=30V, I_D=110A, R_{GEN}=2.2Ω		20		ns
Turn-On Rise Time	t_r			250		
Turn-Off Delay Time	$t_{d(off)}$			50		
Turn-Off Fall Time	t_f			15		

Curve Characteristics

Fig. 1 - Typical Output Characteristics

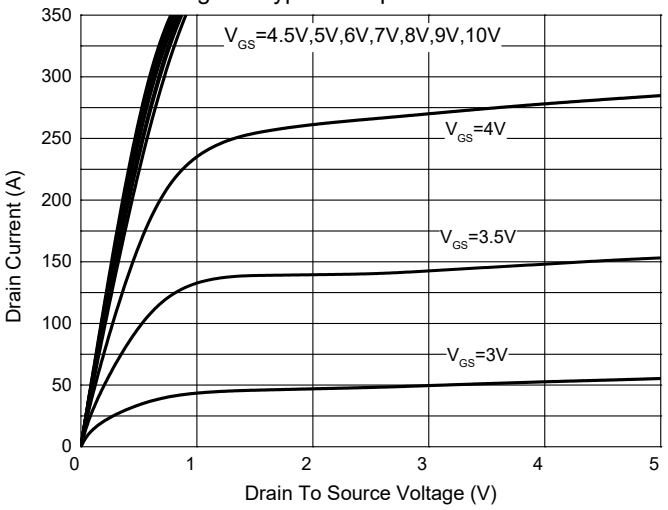


Fig. 2 - Transfer Characteristics

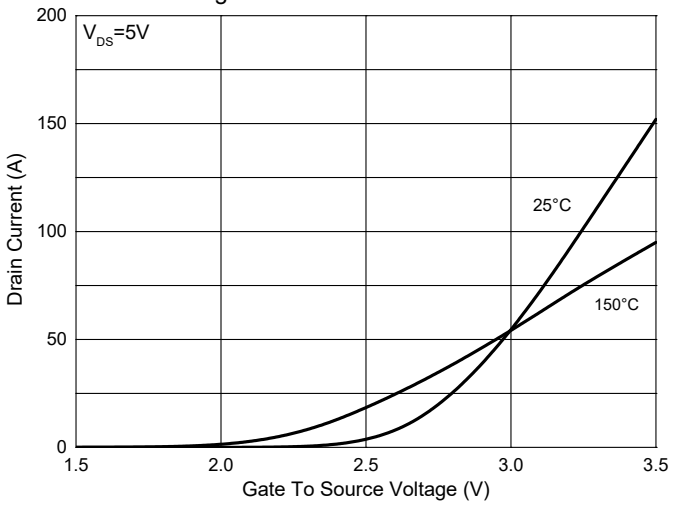


Fig. 3 - $R_{DS(ON)}$—V_{GS}

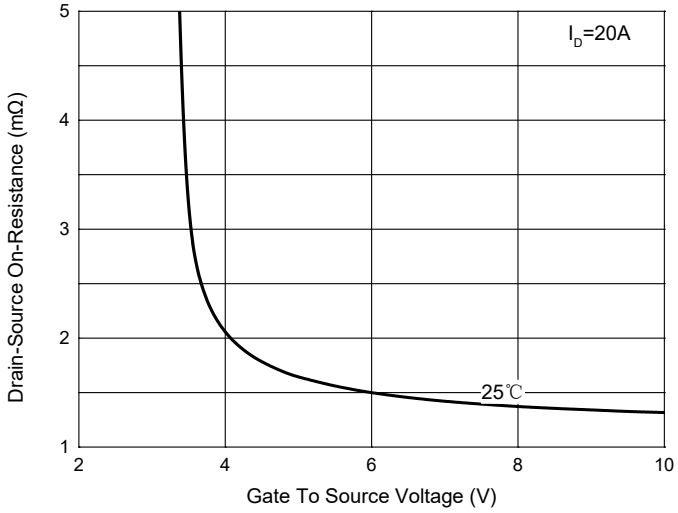


Fig. 4 - $R_{DS(ON)}$—I_D

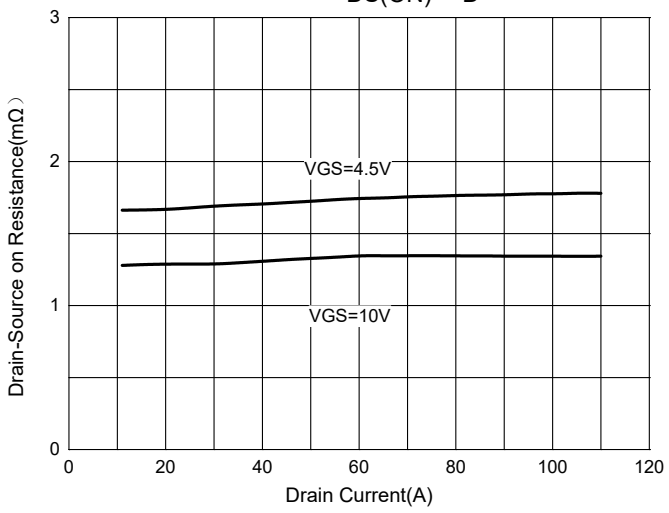


Fig. 5 - Capacitance Characteristics

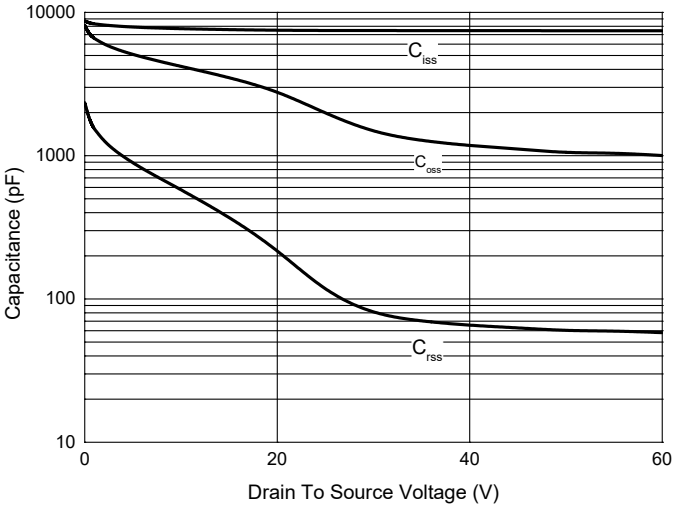
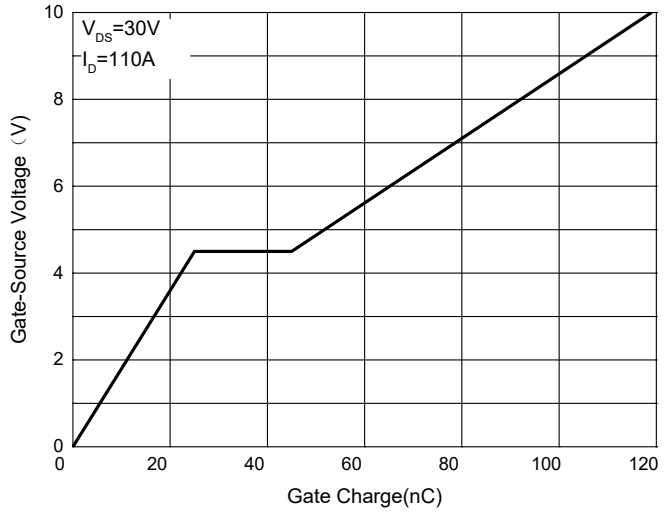


Fig. 6 - Gate Charge



Curve Characteristics

Fig. 7 - Nomalized Threshold Voltage

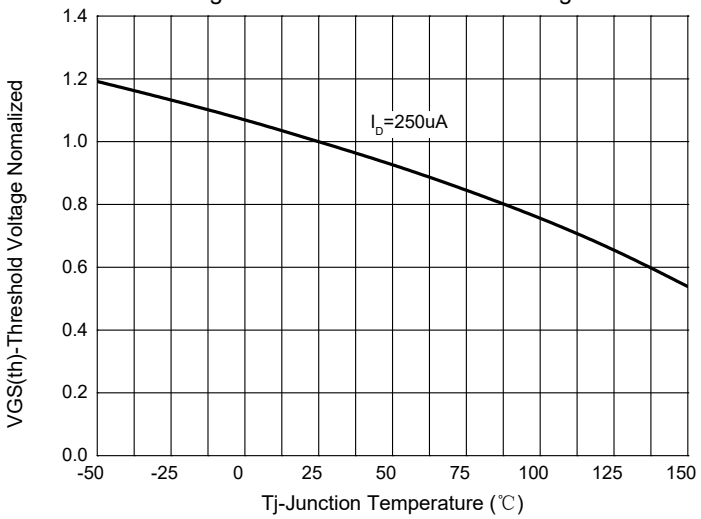


Fig.8-Normalized On Resistance Characteristics

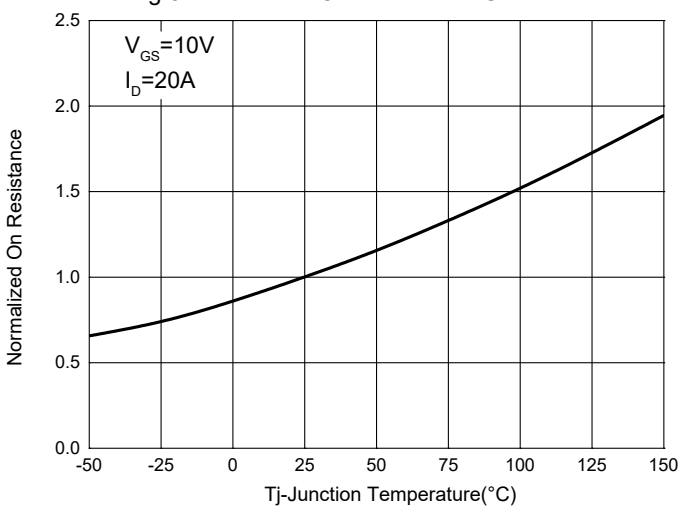


Fig.9 - I_S—V_{SD}

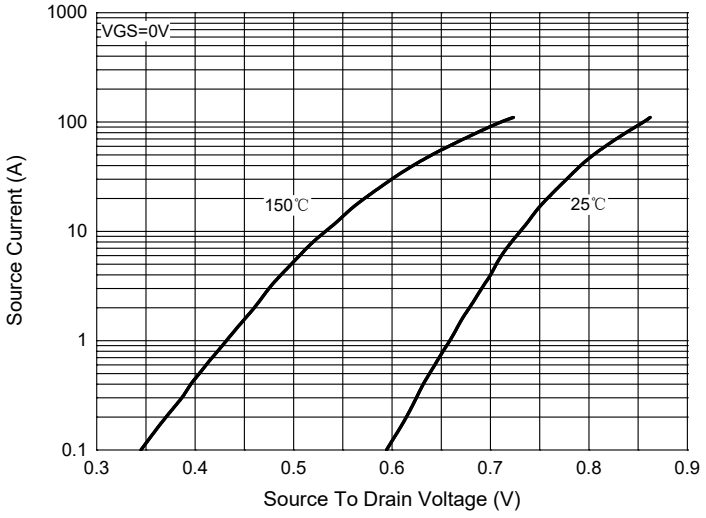


Fig. 10 - Drain Current

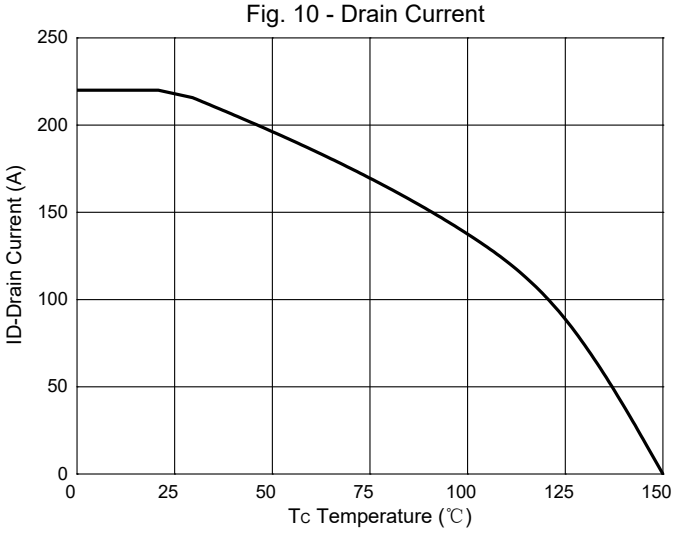
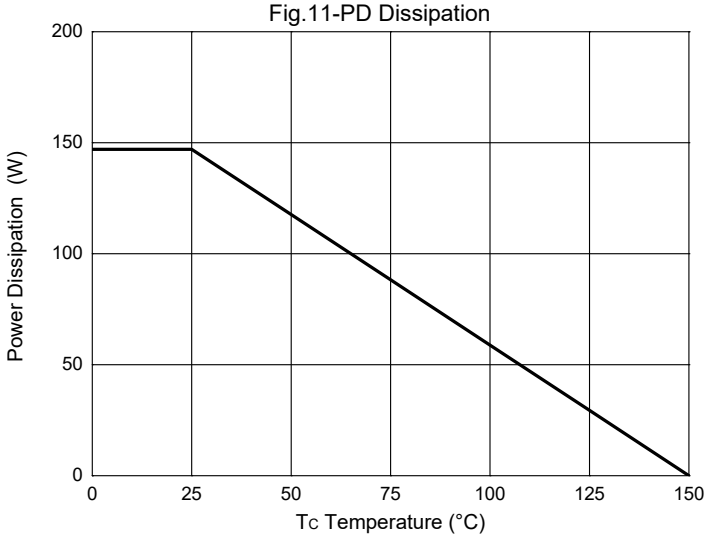


Fig.11-PD Dissipation



Curve Characteristics

Fig. 12 - Safe Operation Area

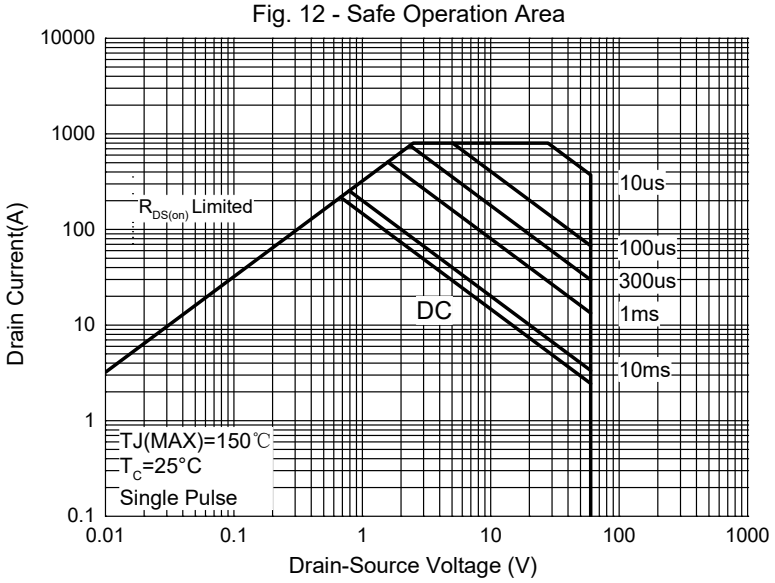
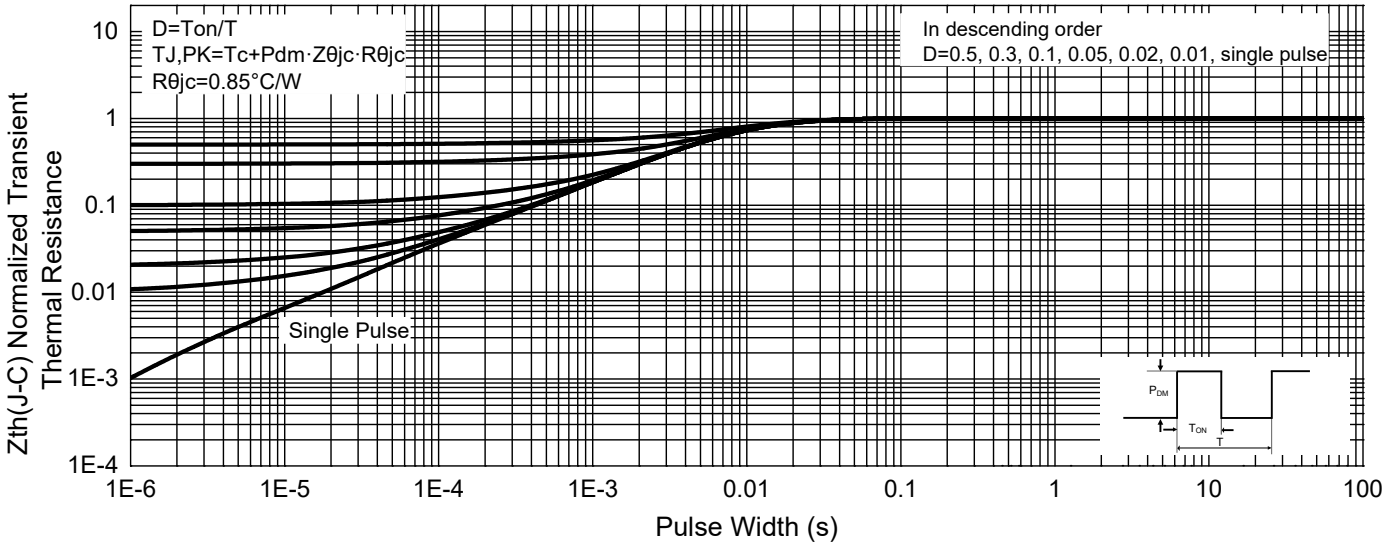


Fig. 13 -Normalized Transient Thermal Impedance



Ordering Information

Device	Packing
Part Number-TP	Tape&Reel: 5Kpcs/Reel