

**Features**

- Trench LV MOSFET Technology
- Excellent package for heat dissipation
- 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)

**Maximum Ratings**

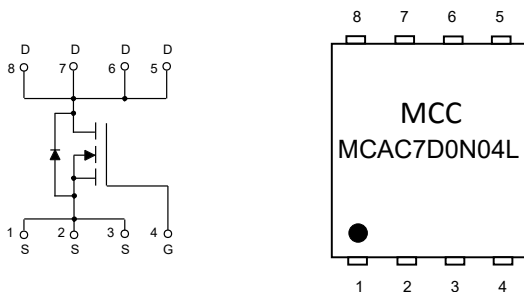
- Operating Junction Temperature Range : -55°C to +150°C
- Storage Temperature Range: -55°C to +150°C
- Thermal Resistance:50°C/W Junction to Ambient<sup>(Note2)</sup>
- Thermal Resistance:1.5°C/W Junction to Case

Parameter	Symbol	Rating	Unit
Drain-Source Voltage	V <sub>DS</sub>	40	V
Gate-Source Voltage	V <sub>GS</sub>	±20	V
Continuous Drain Current	I <sub>D</sub>	T <sub>C</sub> =25°C	75
		T <sub>C</sub> =100°C	47
Pulsed Drain Current <sup>(Note3)</sup>	I <sub>DM</sub>	300	A
Total Power Dissipation <sup>(Note4)</sup>	P <sub>D</sub>	83	W
Single Pulse Avalanche Energy <sup>(Note 5)</sup>	E <sub>AS</sub>	100	mJ

Note:

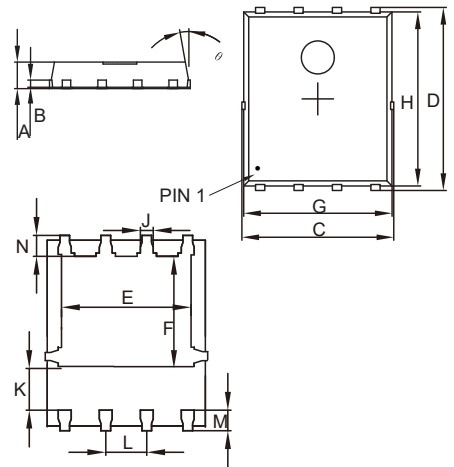
1. Halogen free "Green" products are defined as those which contain <900ppm bromine, <900ppm chlorine (<1500ppm total Br + Cl) and <1000ppm antimony compounds.
2. The value of R<sub>θJA</sub> is measured with the device mounted on 1in<sup>2</sup> FR-4 board with 2oz. Copper, in a still air environment with T<sub>A</sub>=25°C.
3. Repetitive rating; pulse width limited by max. junction temperature.
4. P<sub>D</sub> is based on max. junction temperature, using junction-case thermal resistance.
5. T<sub>J</sub>=25°C, V<sub>DD</sub>=38V, V<sub>GS</sub>=10V, R<sub>G</sub>=25Ω, L=0.5mH.

⚠️ **Do not use this device for applications where failure is not an option.**



**N-CHANNEL MOSFET**

**DFN5060**



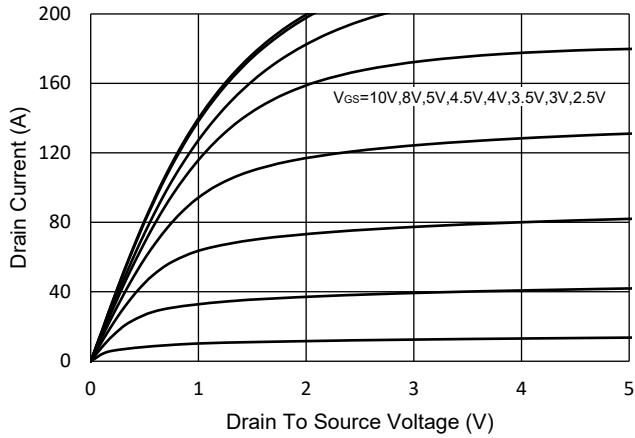
DIM	INCHES		MM		NOTE
	MIN	MAX	MIN	MAX	
A	0.039	0.047	0.80	1.20	
B	0.010		0.254		TYP.
C	0.203	0.219	5.15	5.55	
D	0.234	0.250	5.95	6.35	
E	0.154	0.170	3.92	4.32	
F	0.139	0.154	3.52	3.92	
G	0.197	0.213	5.00	5.40	
H	0.223	0.239	5.66	6.06	
K	0.0444	0.052	1.12	1.32	
J	0.016	0.020	0.41	0.51	
L	0.046	0.054	1.17	1.37	
M	0.022	0.030	0.56	0.76	
N	0.016	0.024	0.40	0.60	

**Electrical Characteristics @ 25°C (Unless Otherwise Specified)**

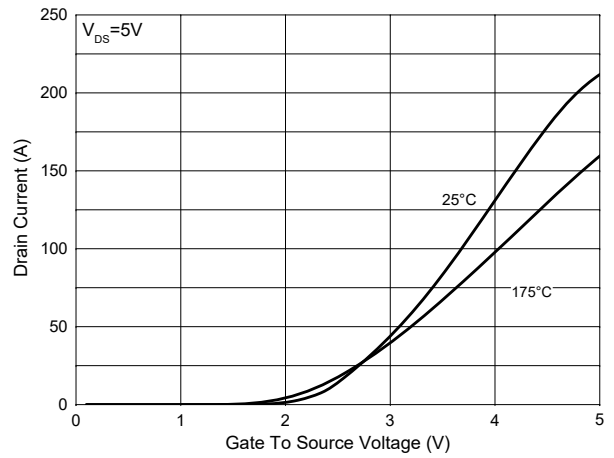
Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
<b>Static Characteristics</b>						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	$V_{GS}=0V, I_D=250\mu A$	40			V
Gate-Source Leakage Current	$I_{GSS}$	$V_{DS}=0V, V_{GS}=\pm 20V$			$\pm 100$	nA
Zero Gate Voltage Drain Current	$I_{DSS}$	$V_{DS}=40V, V_{GS}=0V$			1	$\mu A$
Gate-Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=250\mu A$	1	1.5	2.5	V
Drain-Source On-Resistance	$R_{DS(on)}$	$V_{GS}=10V, I_D=30A$		5	7	m $\Omega$
		$V_{GS}=4.5V, I_D=10A$		6.5	9	
Gate Resistance	$R_G$	f=1MHz, Open drain		1.7		$\Omega$
<b>Diode Characteristics</b>						
Continuous Body Diode Current	$I_S$				75	A
Diode Forward Voltage	$V_{SD}$	$V_{GS}=0V, I_S=30A$			1.2	V
Reverse Recovery Time	$t_{rr}$	$I_F=30A, di/dt=250A/\mu s$		14		ns
Reverse Recovery Charge	$Q_{rr}$			10		nC
<b>Dynamic Characteristics</b>						
Input Capacitance	$C_{iss}$	$V_{DS}=20V, V_{GS}=0V, f=1MHz$		1900		pF
Output Capacitance	$C_{oss}$			195		
Reverse Transfer Capacitance	$C_{riss}$			175		
Total Gate Charge	$Q_g$	$V_{DS}=20V, V_{GS}=10V, I_D=30A$		42		nC
Gate-Source Charge	$Q_{gs}$			6		
Gate-Drain Charge	$Q_{gd}$			11		
Turn-On Delay Time	$t_{d(on)}$	$V_{DD}=20V, V_{GS}=10V,$ $R_G=2.2\Omega, I_D=30A$		9		ns
Turn-On Rise Time	$t_r$			146		
Turn-Off Delay Time	$t_{d(off)}$			21		
Turn-Off Fall Time	$t_f$			18		

**Curve Characteristics**

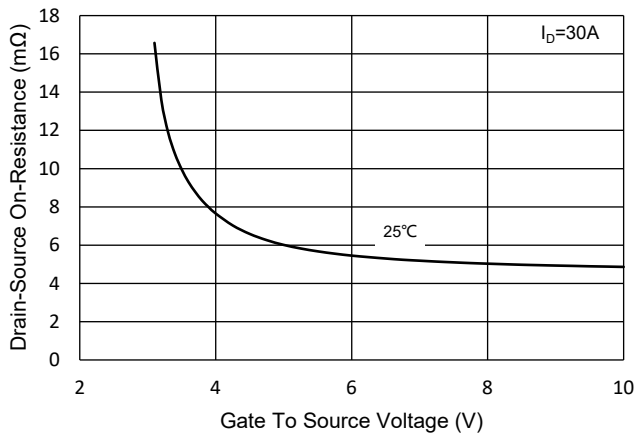
**Fig.1 - Typical Output Characteristics**



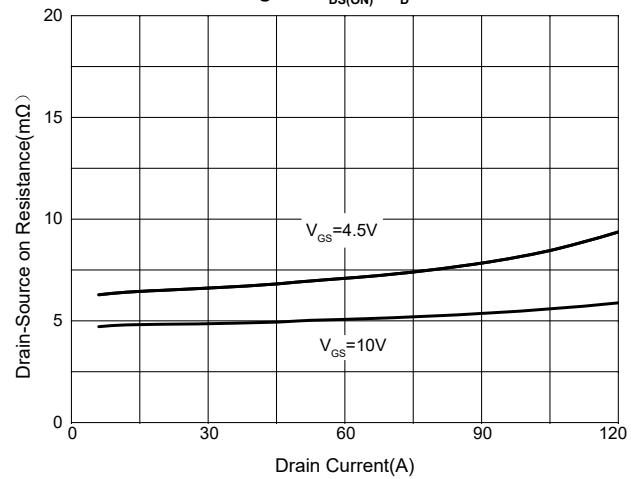
**Fig. 2 - Transfer Characteristics**



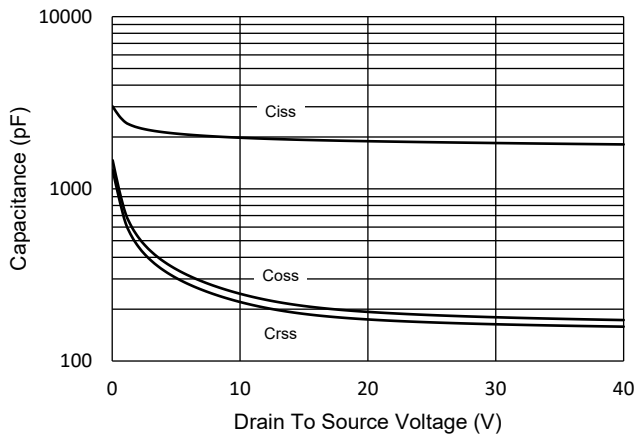
**Fig.3 -  $R_{DS(ON)}$  -  $V_{GS}$**



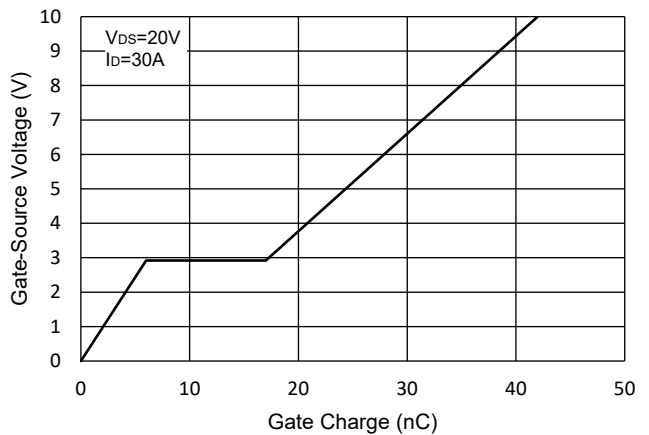
**Fig. 4 -  $R_{DS(ON)}$  -  $I_D$**



**Fig.5 - Capacitance Characteristics**

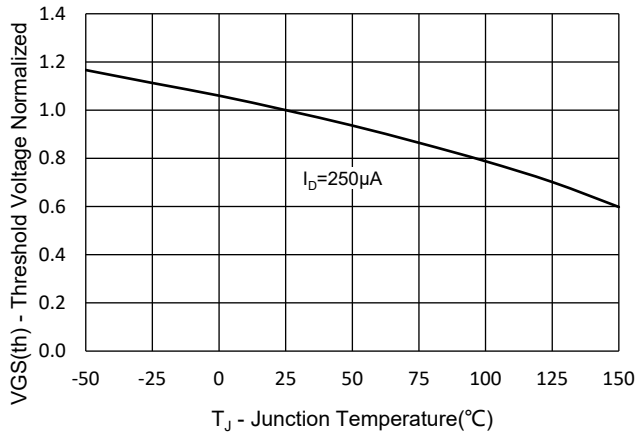


**Fig.6 - Gate Charge**

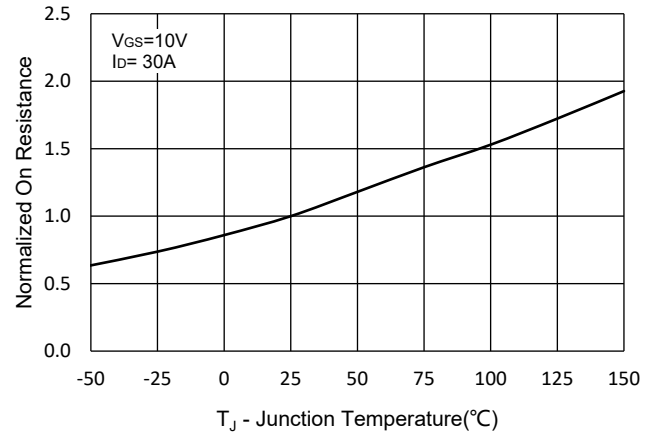


**Curve Characteristics**

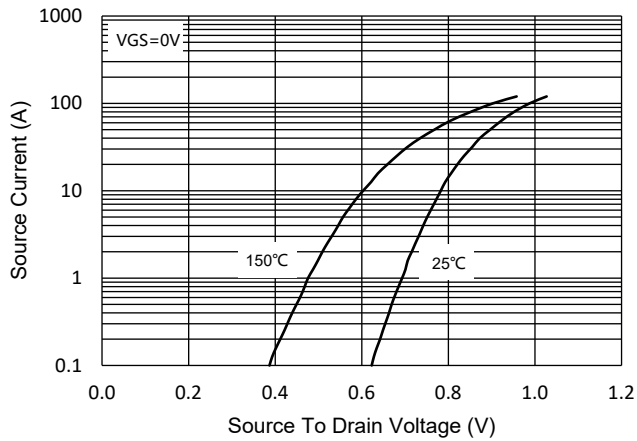
**Fig.7 - Normalized Threshold Voltage**



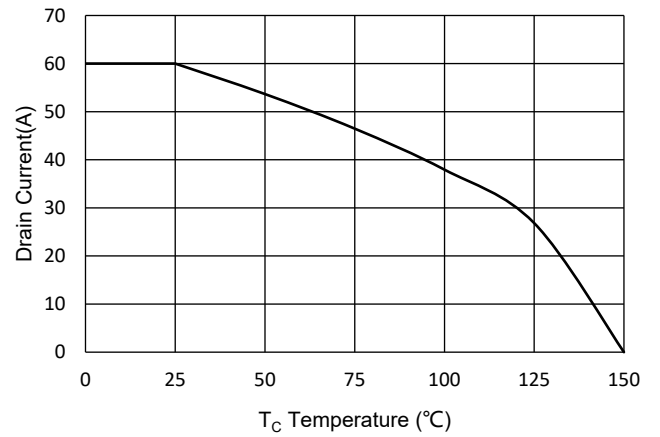
**Fig.8 - Normalized On Resistance Characteristics**



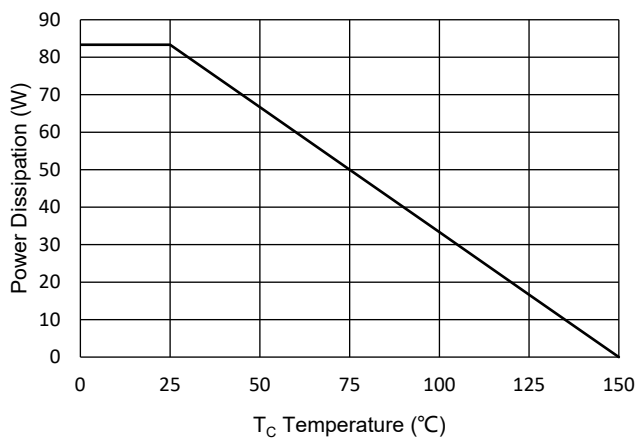
**Fig.9 - I<sub>S</sub> - V<sub>SD</sub>**



**Fig.10 - Drain Current**



**Fig.11 - PD Dissipation**



Curve Characteristics

Fig.12 - Safe Operation Area

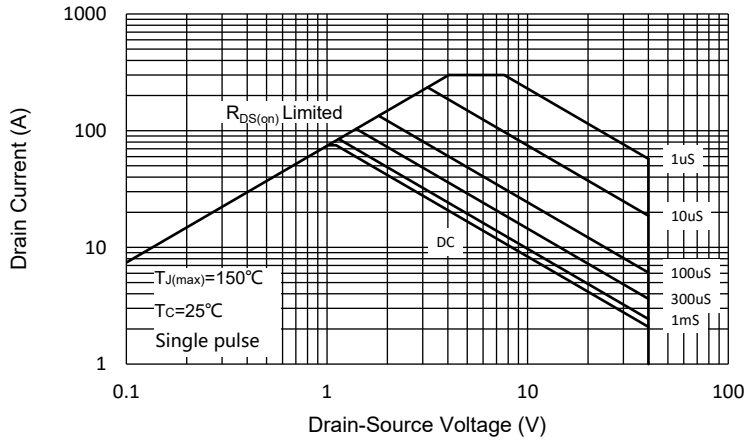
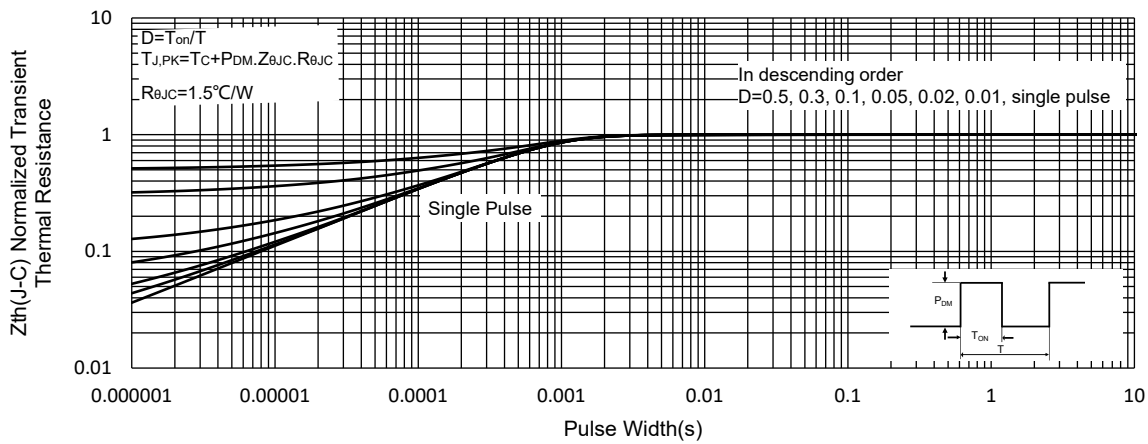


Fig.13 - Normalized Transient Thermal Impedance



## Ordering Information

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

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