

### Features

- Split Gate Trench MOSFET Technology
- Low Thermal Resistance
- 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)
- Moisture Sensitivity Level 3

### Maximum Ratings

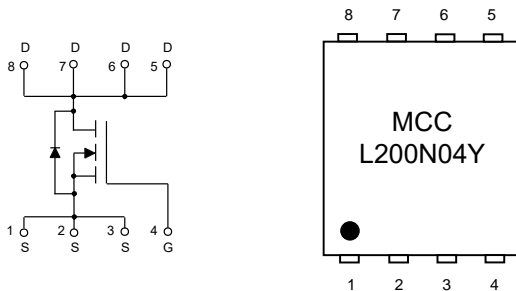
- Operating Junction Temperature Range : -55°C to +150°C
- Storage Temperature Range: -55°C to +150°C
- Thermal Resistance: 1.04°C/W Junction to Case<sup>(2)</sup>

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>	200	A
Pulsed Drain Current <sup>(3)</sup>	I <sub>DM</sub>	600	A
Total Power Dissipation	P <sub>D</sub>	120	W
Single Pulsed Avalanche Energy <sup>(4)</sup>	E <sub>AS</sub>	625	mJ

Note:

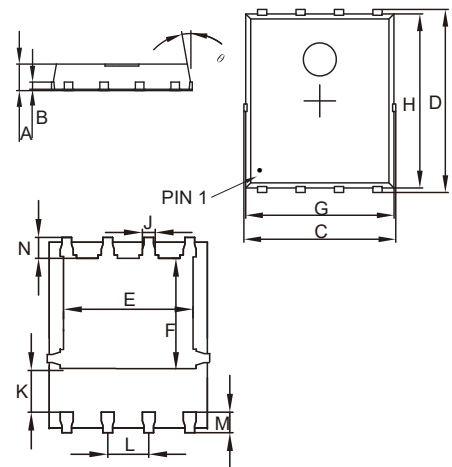
1. Halogen free "Green" products are defined as those which contain <900ppm bromine, <900ppm chlorine (<1500ppm total Br + Cl) and <1000ppm antimony compounds.
2. Surface Mounted on 1 in<sup>2</sup> pad area, t ≤ 10 sec
3. Pulse Test: Pulse Width ≤ 300us, Duty cycle ≤ 2%.
4. T<sub>J</sub>=25°C, V<sub>DD</sub>=25V, L=0.5mH, I<sub>AS</sub>=50A

### Internal Structure and Marking Code



## N-CHANNEL MOSFET

### DFN5060



DIM	DIMENSIONS				NOTE
	INCHES		MM		
	MIN	MAX	MIN	MAX	
A	0.031	0.047	0.80	1.20	
B	0.010		0.254		TYP.
C	0.193	0.222	4.90	5.64	
D	0.232	0.250	5.90	6.35	
E	0.148	0.167	3.75	4.25	
F	0.126	0.154	3.20	3.92	
G	0.189	0.213	4.80	5.40	
H	0.222	0.239	5.65	6.06	
K	0.045	0.059	1.15	1.50	
J	0.012	0.020	0.30	0.50	
L	0.046	0.054	1.17	1.37	
M	0.012	0.028	0.30	0.71	
N	0.016	0.028	0.40	0.71	

**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	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=250\mu A$	1.0	1.8	2.5	V
Drain-Source On-Resistance	$R_{DS(on)}$	$V_{GS}=10V, I_D=20A$		1.1	1.35	m $\Omega$
		$V_{GS}=4.5V, I_D=20A$		1.5	2.1	m $\Omega$
<b>Diode Characteristics</b>						
Continuous Body Diode Current	$I_S$				200	A
Diode Forward Voltage	$V_{SD}$	$V_{GS}=0V, I_S=20A$			1.3	V
Reverse Recovery Time	$t_{rr}$	$I_F=20A, di_F/dt=100A/\mu s$		56		ns
Reverse Recovery Charge	$Q_{rr}$			54		nC
<b>Dynamic Characteristics</b>						
Input Capacitance	$C_{iss}$	$V_{DS}=25V, V_{GS}=0V, f=1MHz$		7100		pF
Output Capacitance	$C_{oss}$			1298		
Reverse Transfer Capacitance	$C_{rss}$			55		
Total Gate Charge	$Q_g$	$V_{DS}=20V, V_{GS}=10V, I_D=20A$		132		nC
Gate-Source Charge	$Q_{gs}$			25		
Gate-Drain Charge	$Q_{gd}$			24.6		
Turn-On Delay Time	$t_{d(on)}$	$V_{DS}=20V, V_{GEN}=10V, R_G=2.2\Omega, I_{DS}=20A$		18.8		ns
Turn-On Rise Time	$t_r$			70.1		
Turn-Off Delay Time	$t_{d(off)}$			136.8		
Turn-Off Fall Time	$t_f$			92.3		

## Curve Characteristics

Fig. 1 - Typical Output Characteristics

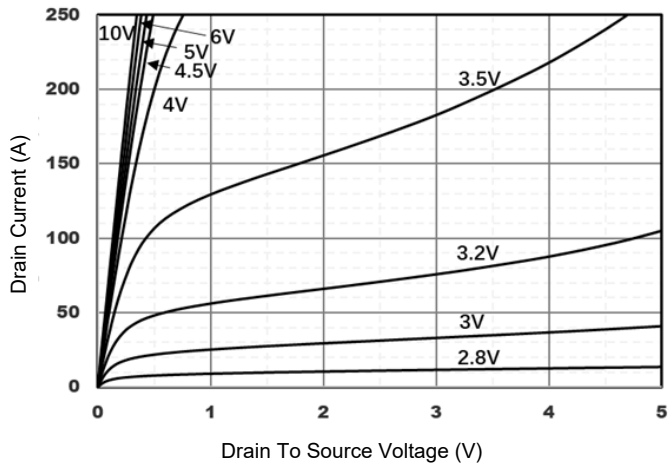


Fig. 2 - Transfer Characteristics

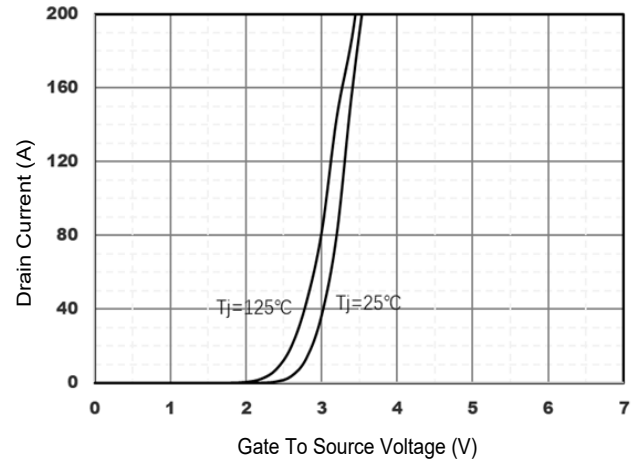


Fig. 3 -  $R_{DS(ON)} - V_{GS}$

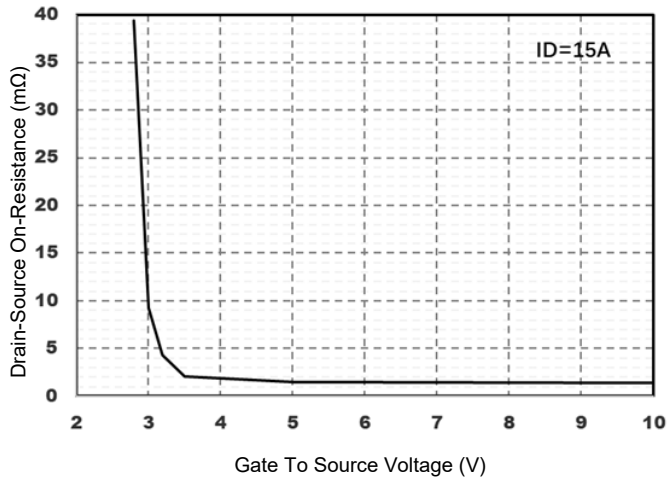


Fig. 4 -  $R_{DS(ON)} - T_J$

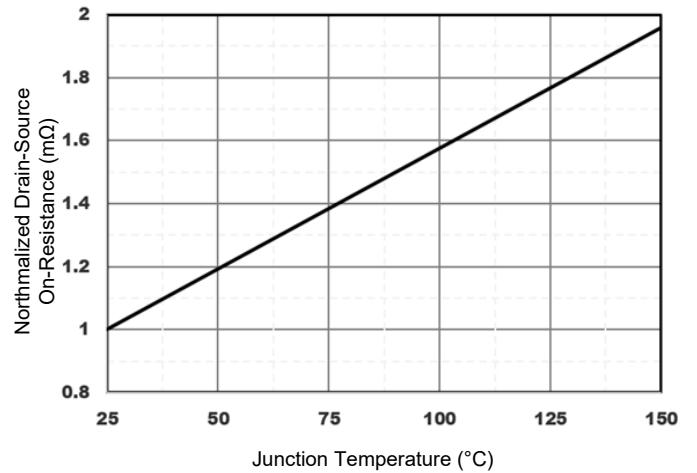


Fig. 5 - Capacitance Characteristics

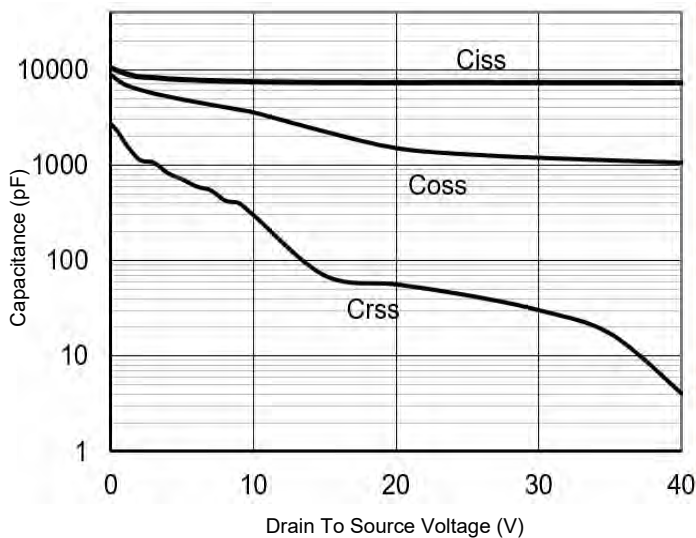
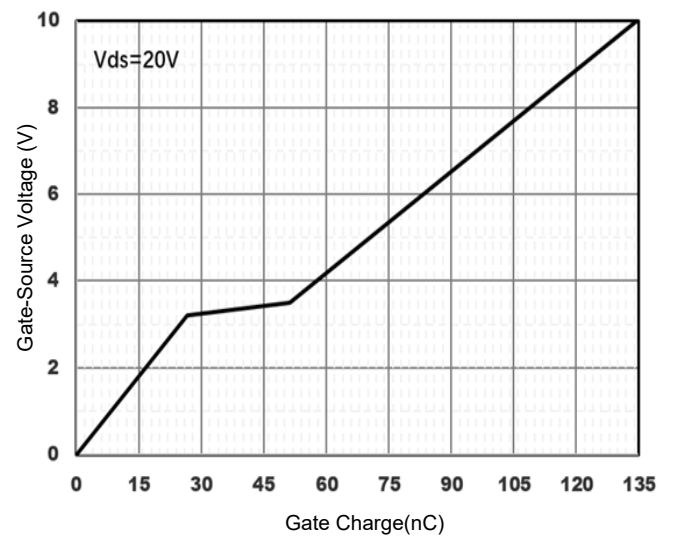


Fig. 6 - Gate Charge



Curve Characteristics

Fig. 7 - Safe Operation Area

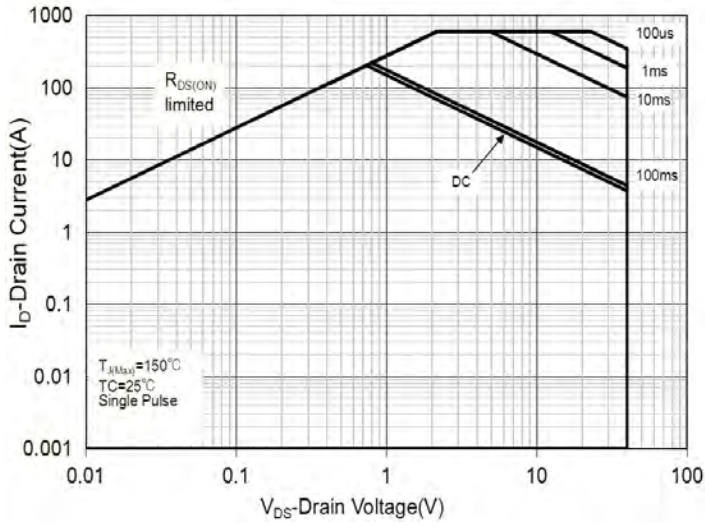
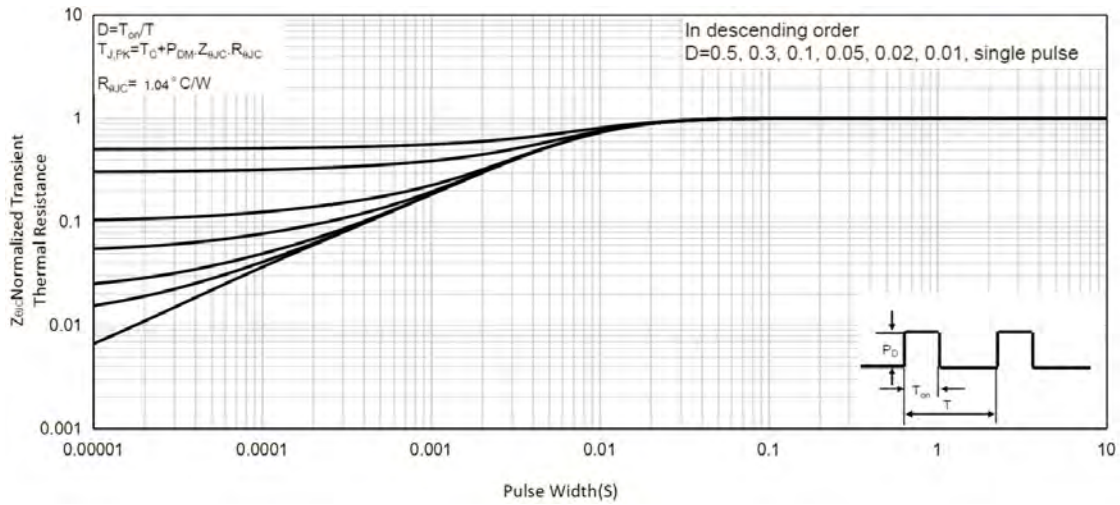


Fig. 8 - Normalized Transient Thermal Impedance



## Ordering Information

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

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