Features

- Split Gate Trench Mosfet Technology
- Moisture Sensitivity Level 1
- Halogen Free. “Green” Device (Note 1)
- Epoxy Meets UL 94 V-0 Flammability Rating
- Lead Free Finish/RoHS Compliant (Note 2)("P" Suffix Designates RoHS Compliant. See Ordering Information)

N-CHANNEL MOSFET

Maximum Ratings

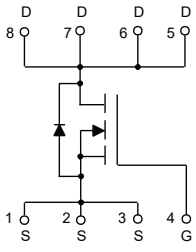
- Operating Junction Temperature Range : -55°C to +175°C
- Storage Temperature Range: -55°C to +175°C
- Thermal Resistance: 50°C/W Junction to Ambient(Note 2)
- Thermal Resistance: 0.76°C/W Junction to Case

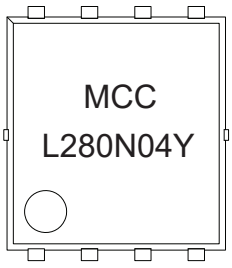
Parameter		Symbol	Rating	Unit
Drain-Source Voltage		V_{DS}	40	V
Gate-Source Volltage		V_{GS}	±20	V
Continuous Drain Current	T_C=25°C	I_D	280	A
	T_C=100°C		198	
Pulsed Drain Current (Note 3)		I_{DM}	1120	A
Total Power Dissipation(Note 4)		P_D	197	W
Avalance Energy(Note 5)		E_{AS}	1458	mJ

Note:

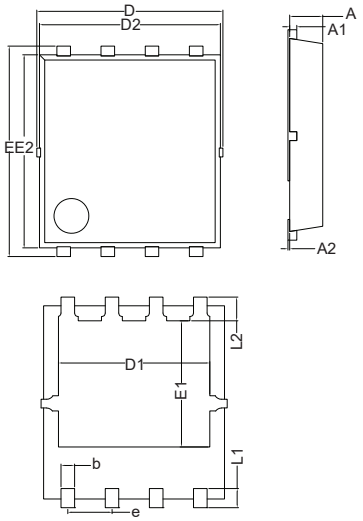
1. Halogen free "Green” products are defined as those which contain <900ppm bromine, <900ppm chlorine (<1500ppm total Br + Cl) and <1000ppm antimony compounds.
2. High Temperature Solder Exemption Applied, see EU Directive Annex 7a.
3. The value of $R_{\theta JA}$ is measured with the device mounted on 1in^2 FR-4 board with 2oz. Copper, in a still air environment with T_A =25°C.
4. Repetitive rating; pulse width limited by max. junction temperature.
5. P_D is based on max. junction temperature, using junction-case thermal resistance.
6. T_J=25°C, V_{DD}=70V, V_{GS}=10V, L =4mH.

Internal Structure and Marking Code



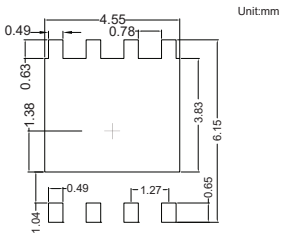


DFN5060-C



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

Suggested Solder Pad Layout



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=1mA	40			V
Gate-Source Leakage Current	I_{GSS}	V_{DS}=0V, V_{GS} =±20V			±100	nA
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}=32V, V_{GS}=0V			1	μA
Gate-Threshold Voltage	$V_{GS(th)}$	V_{DS}=V_{GS}, I_D=250μA	2	2.8	4	V
Drain-Source On-Resistance	$R_{DS(on)}$	V_{GS}=10V, I_D=60A		0.6	0.8	mΩ
Gate Resistance	R_g	f=1 MHz, Open Drain		2.3		Ω
Diode Characteristics						
Continuous Body Diode Current	I_S				280	A
Diode Forward Voltage	V_{SD}	V_{GS}=0V, I_S=60A			1	V
Reverse Recovery Time	t_{rr}	I_F=50A, dI_F/dt=100A/μs		78		ns
Reverse Recovery Charge	Q_{rr}			87		nC
Dynamic Characteristics						
Input Capacitance	C_{iss}	V_{DS}=20V,V_{GS}=0V,f=1MHz		5413		pF
Output Capacitance	C_{oss}			3400		
Reverse Transfer Capacitance	C_{rss}			231		
Total Gate Charge	Q_g	V_{DS}=20V,V_{GS}=10V,I_D=50A		79		nC
Gate-Source Charge	Q_{gs}			24		
Gate-Drain Charge	Q_{gd}			17		
Turn-On Delay Time	$t_{d(on)}$	V_{DD}=20V,V_{GS}=10V, R_{GEN}=6Ω, I_{DS}=50A		26		ns
Turn-On Rise Time	t_r			35.5		
Turn-Off Delay Time	$t_{d(off)}$			60		
Turn-Off Fall Time	t_f			47		

Curve Characteristics

Fig. 1 - Typical Output Characteristics

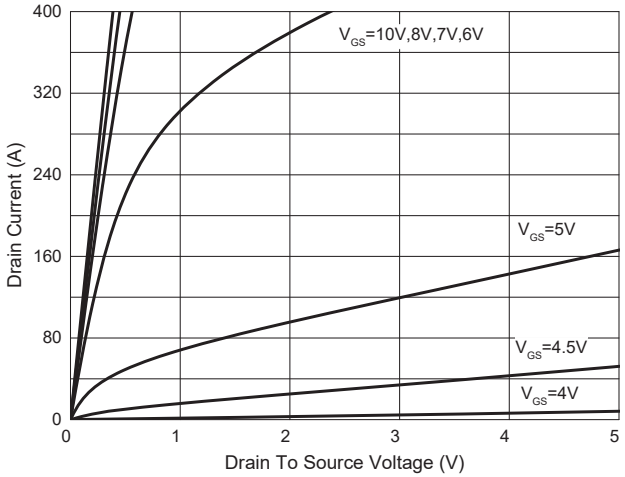


Fig. 2 - Transfer Characteristics

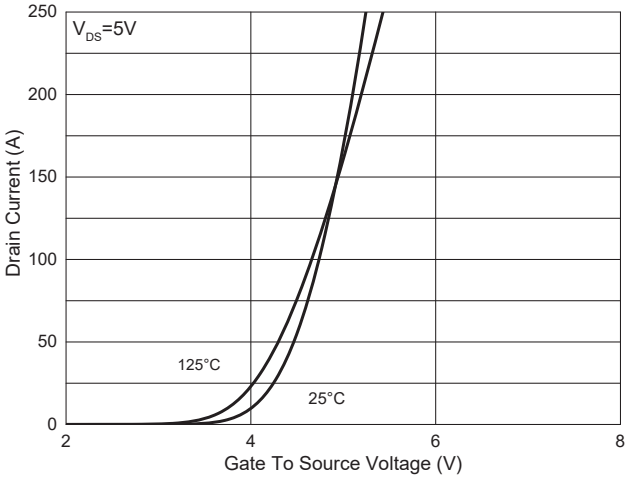


Fig. 3 - $R_{DS(ON)}$—V_{GS}

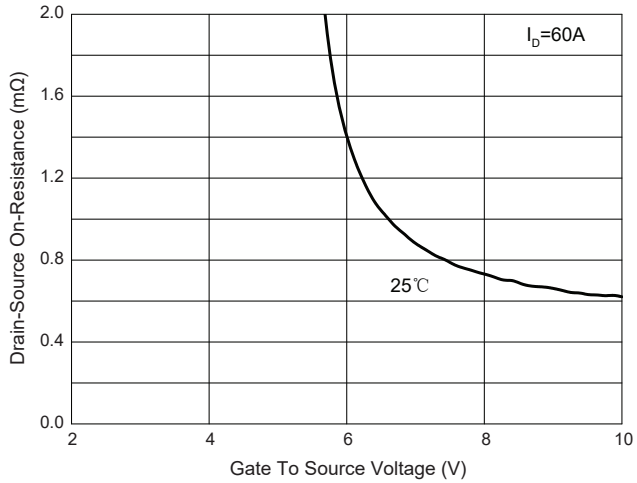


Fig. 4 - $R_{DS(ON)}$—I_D

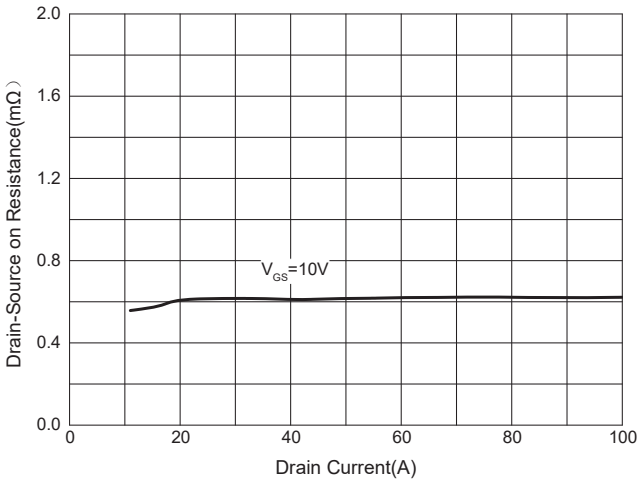


Fig. 5 - Capacitance Characteristics

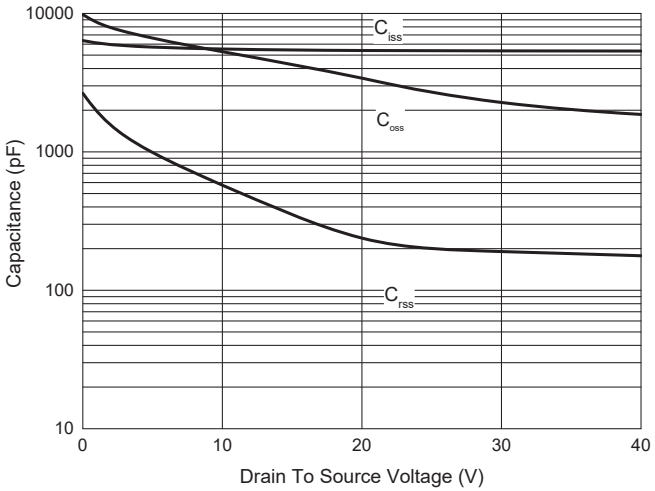
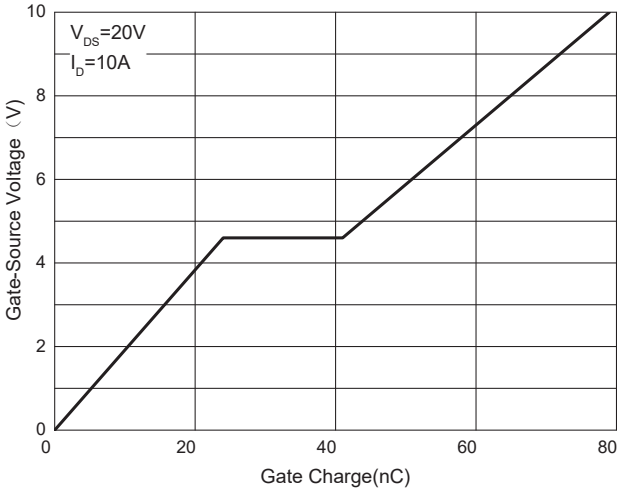


Fig. 6 - Gate Charge



Curve Characteristics

Fig. 7 - Nomalized Threshold Voltage

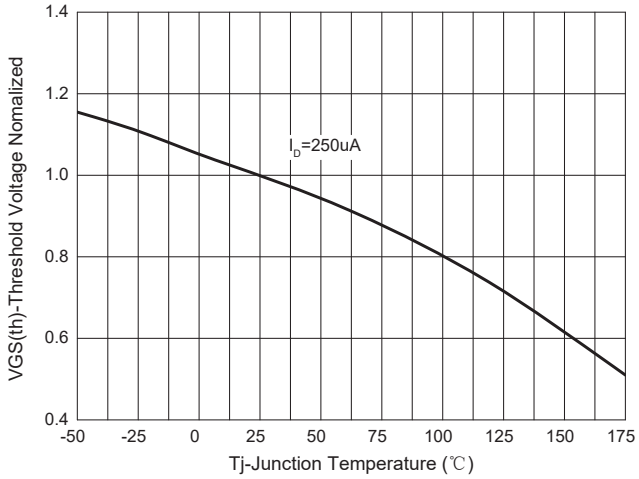


Fig.8-Normalized On Resistance Characteristics

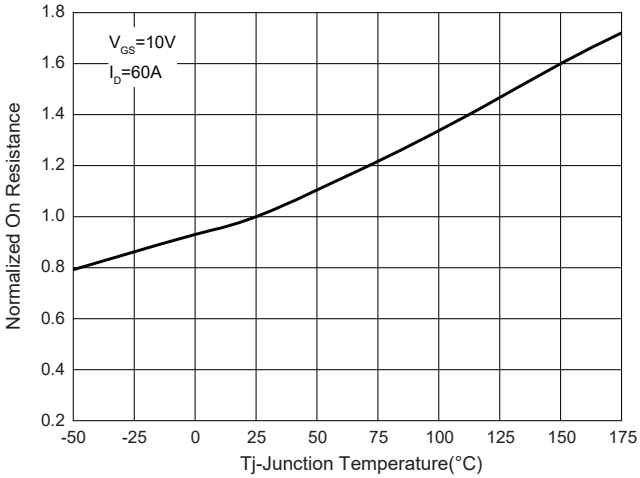


Fig.9 - I_S—V_{SD}

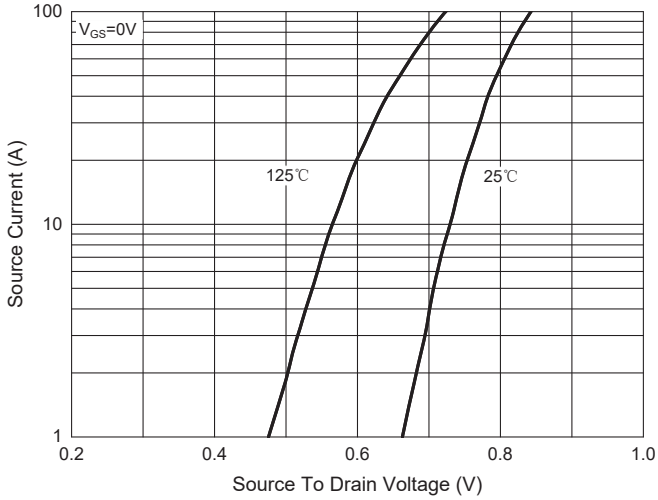


Fig. 10 - Drain Current

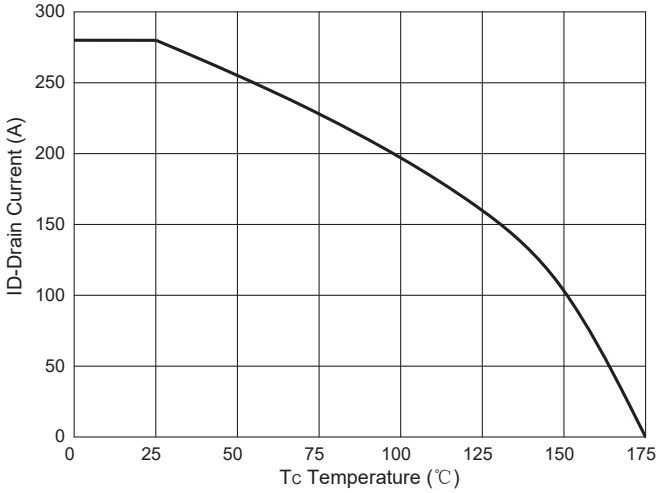
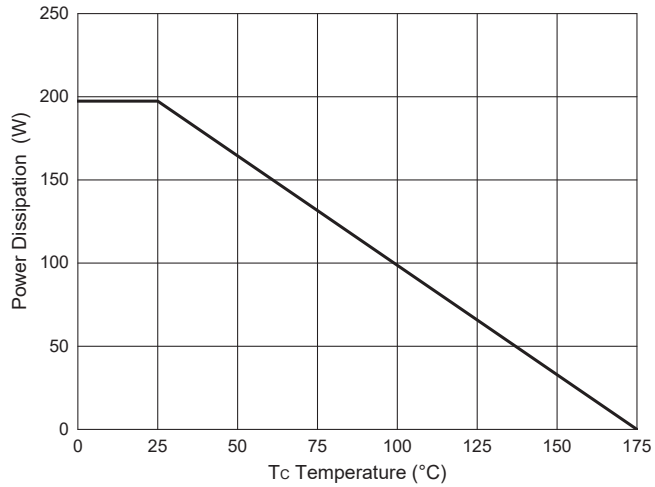


Fig.11-PD Dissipation



Curve Characteristics

Fig. 12 - Safe Operation Area

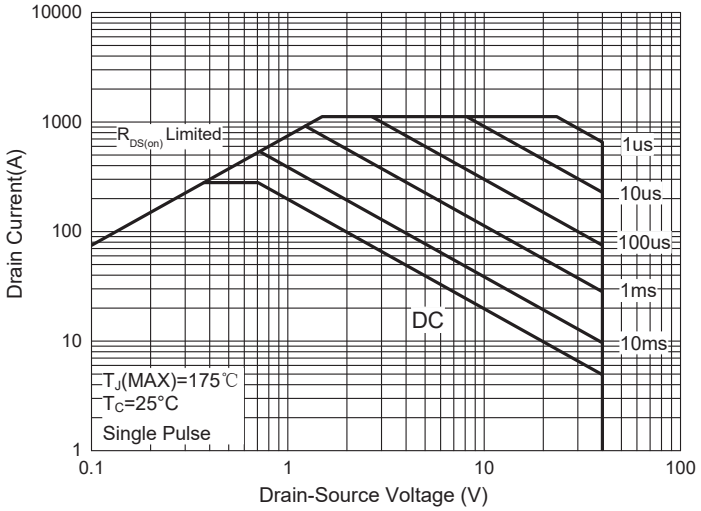
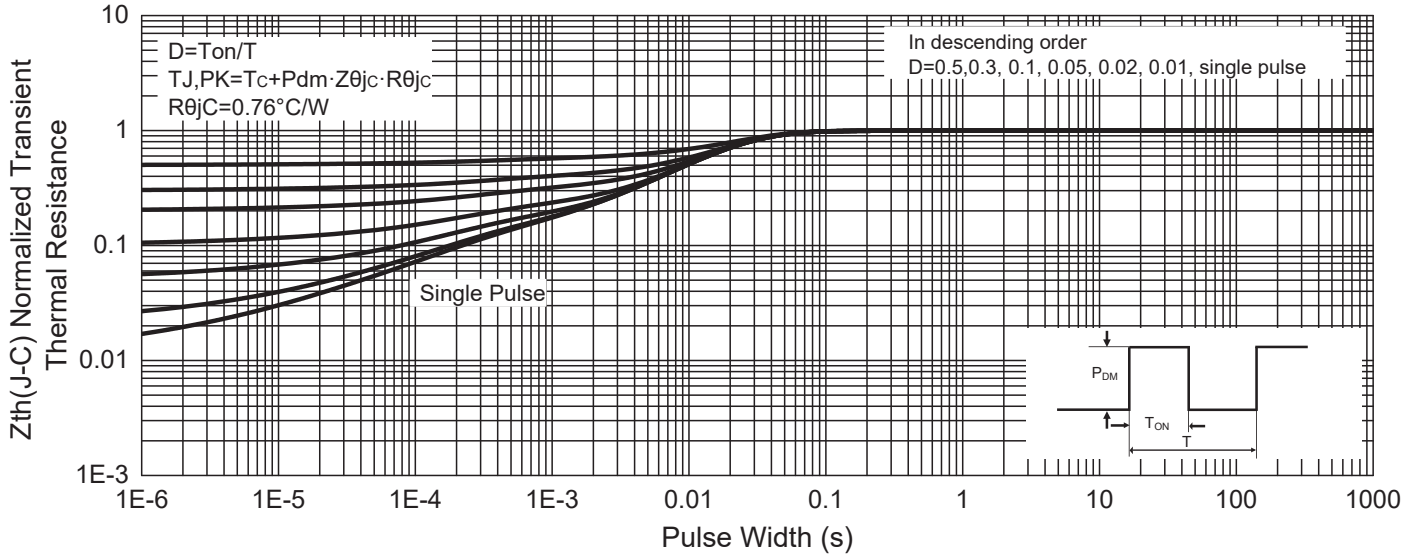


Fig. 13 -Normalized Transient Thermal Impedance



Ordering Information

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