Features

- Split Gate Trench MOSFET Technology
- 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

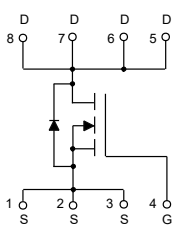
- Operating Junction Temperature Range : -55°C to +150°C
- Storage Temperature Range: -55°C to +150°C
- Thermal Resistance: 50°C/W Junction to Ambient(Note 2)
- Thermal Resistance: 1.08°C/W Junction to Case

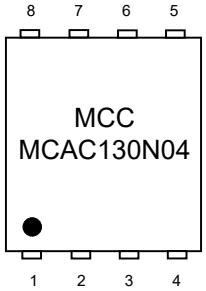
Parameter		Symbol	Rating	Unit
Drain-Source Voltage		V_{DS}	40	V
Gate-Source Volltage		V_{GS}	±20	V
Continuous Drain Current	T_C=25°C	I_D	130	A
	T_C=100°C		82	
Pulsed Drain Current (Note 3)		I_{DM}	520	A
Total Power Dissipation (Note 4)		P_D	115	W
Single Pulse Avalanche Energy (Note 5)		E_{AS}	600	mJ

Note:

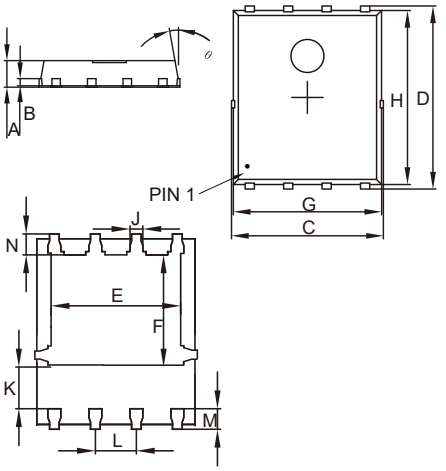
1. Halogen free "Green” products are defined as those which contain <900ppm bromine, <900ppm chlorine (<1500ppm total Br + Cl) and <1000ppm antimony compounds.
2. The value of $R_{\theta JA}$ is measured with the device mounted on 1in^2 FR-4 board with 2oz. Copper, in a still air environment with TA =25°C. The value in any given application depends on the user's specifi3023c board design.
3. Repetitive rating; pulse width limited by max. junction temperature.
4. PD is based on max. junction temperature, using Steady-State junction-ambient thermal resistance.
5. TJ=25, V_{DD}=30V, V_{GS}=10V, L=3mH.

Internal Structure and Marking Code





DFN5060



DIMENSIONS					
DIM	INCHES		MM		NOTE
	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
Static Characteristics						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	V_{GS}=0V, I_D=250μA	40			V
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}=40V, V_{GS}=0V			1	μA
Gate-Source Leakage Current	I_{GSS}	V_{DS}=0V, V_{GS} =±20V			±100	nA
Gate-Threshold Voltage	$V_{GS(th)}$	V_{DS}=V_{GS}, I_D=250μA	1.0	1.8	2.5	V
Drain-Source On-Resistance	$R_{DS(on)}$	V_{GS}=10V, I_D=20A		1.45	1.75	mΩ
		V_{GS}=4.5V, I_D=20A		1.9	2.5	
Gate Resistance	R_G	f=1MHz, Open Drain		2.6		Ω
Dynamic Characteristics						
Maximum Body-Diode Continuous Current	I_S				130	A
Diode Forward Voltage	V_{SD}	V_{GS}=0V, I_S=20A			1.2	V
Reverse Recovery Charge	Q_{rr}	I_F=20A,di/dt=100A/μs		75		nC
Reverse Recovery Time	t_{rr}			57		ns
Switching Characteristics						
Input Capacitance	C_{iss}	V_{DS}=20V,V_{GS}=0V,f=1MHz		6853		pF
Output Capacitance	C_{oss}			1489		
Reverse Transfer Capacitance	C_{rss}			107		
Total Gate Charge	Q_g	V_{GS}=10V,V_{DS}=20V,I_D=20A		125		nC
Gate-Source Charge	Q_{gs}			18		
Gate-Drain Charge	Q_{gd}			26		
Turn-On Delay Time	$t_{d(on)}$	V_{GS}=10V,V_{DS}=20V, I_{DS}=20A,R_{GEN}=2.2Ω		12		ns
Turn-On Rise Time	t_r			34		
Turn-Off Delay Time	$t_{d(off)}$			139		
Turn-Off Fall Time	t_f			68		

Curve Characteristics

Fig. 1 - Typical Output Characteristics

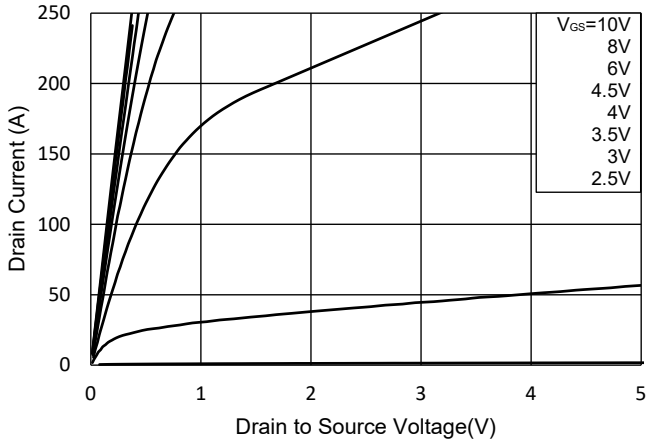


Fig.2 Transfer Characteristic

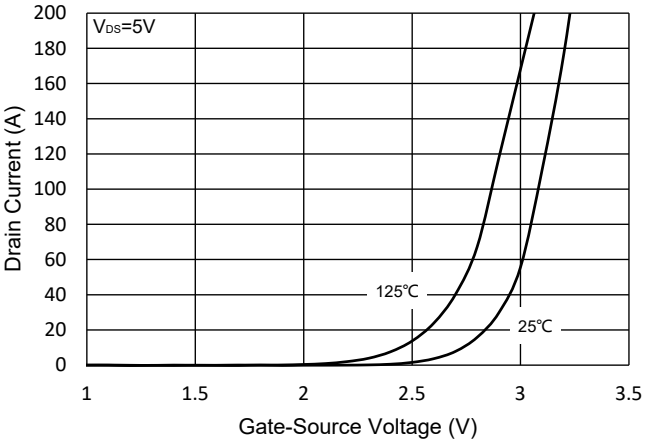


Fig.3 Rdson-Vgs

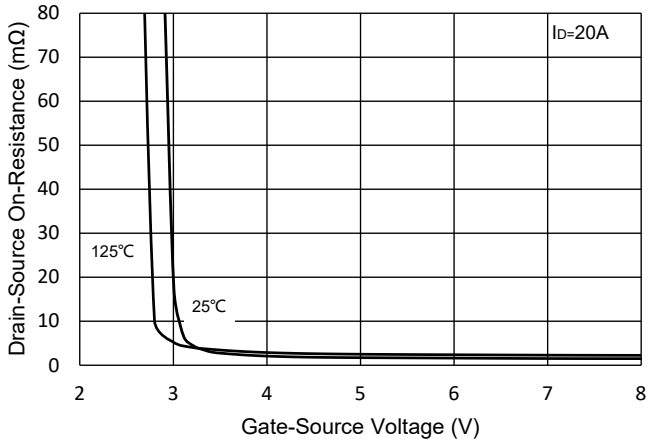


Fig.4 RDS(ON)-ID

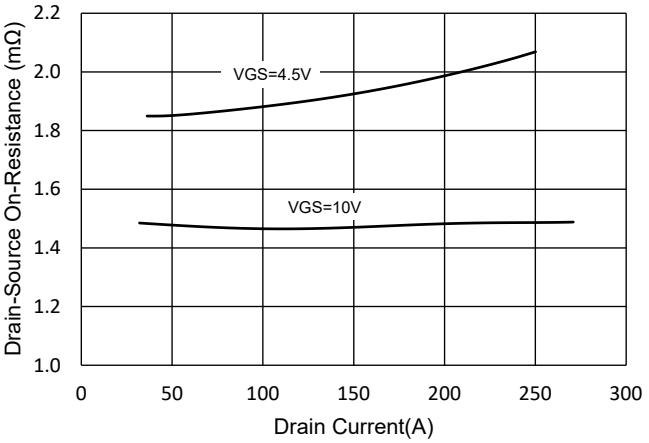


Fig.5 Capacitance Characteristics

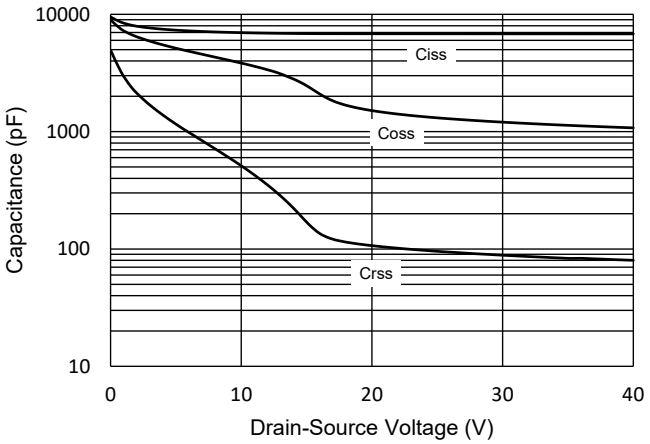
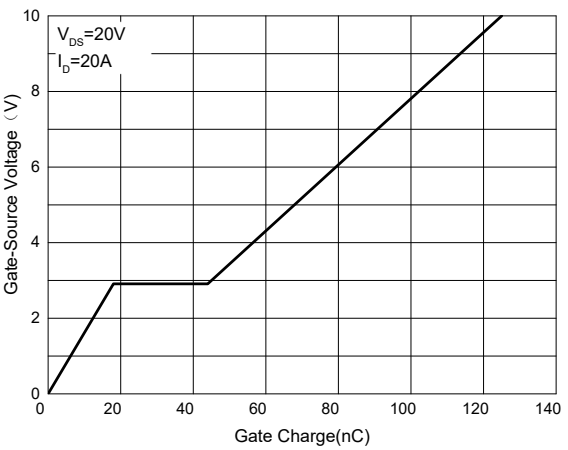


Fig. 6 - Gate Charge



Curve Characteristics

Fig.7 Threshold Voltage

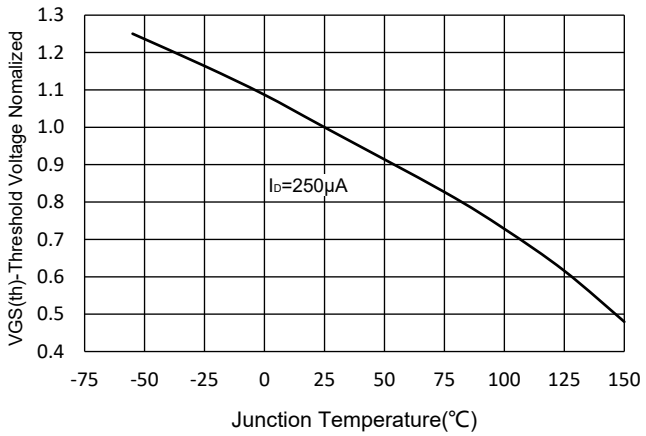


Fig.8 Normalized On Resistance Characteristics

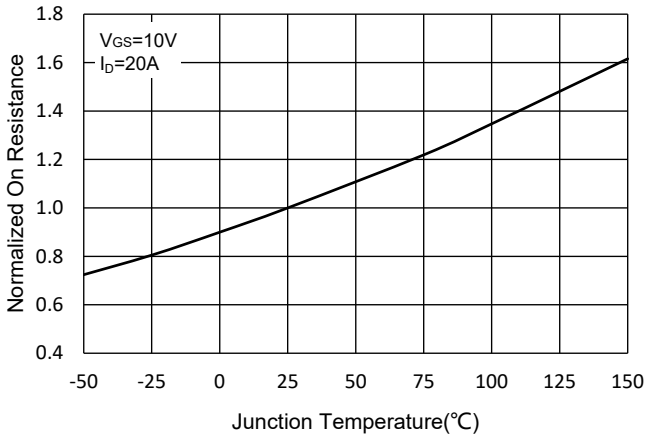


Fig.9 - I_S—V_{SD}

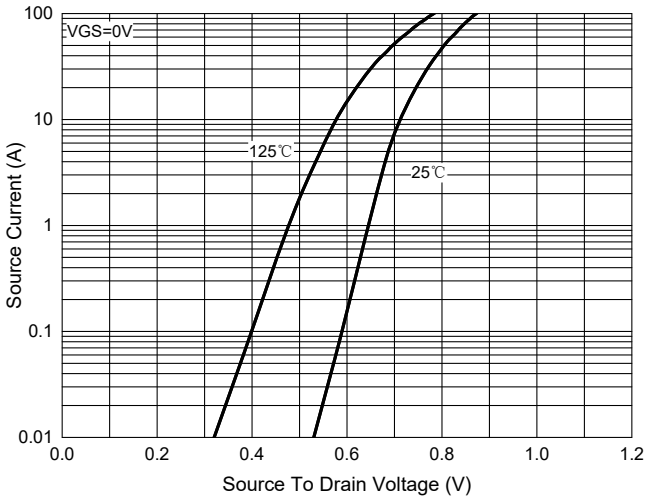


Fig. 10 - Drain Current

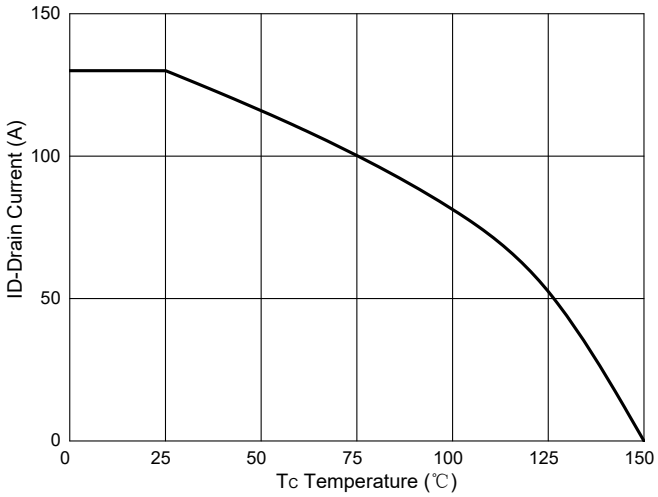
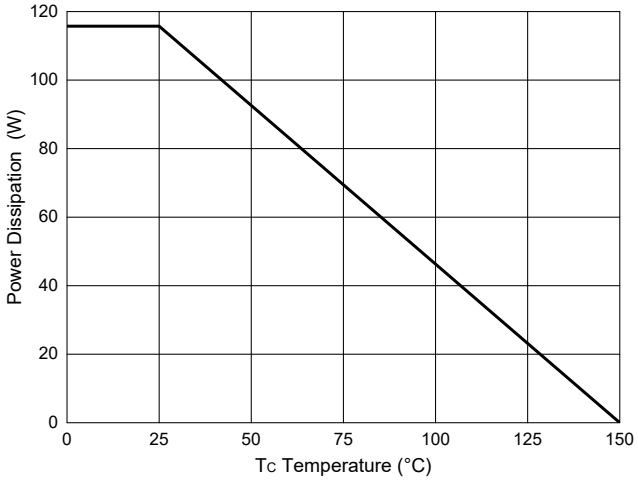


Fig.11-PD Dissipation



Curve Characteristics

Fig. 12 - Safe Operation Area

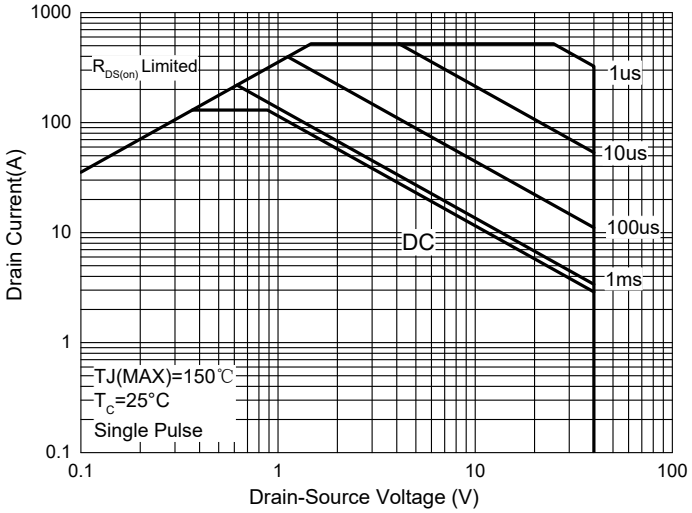
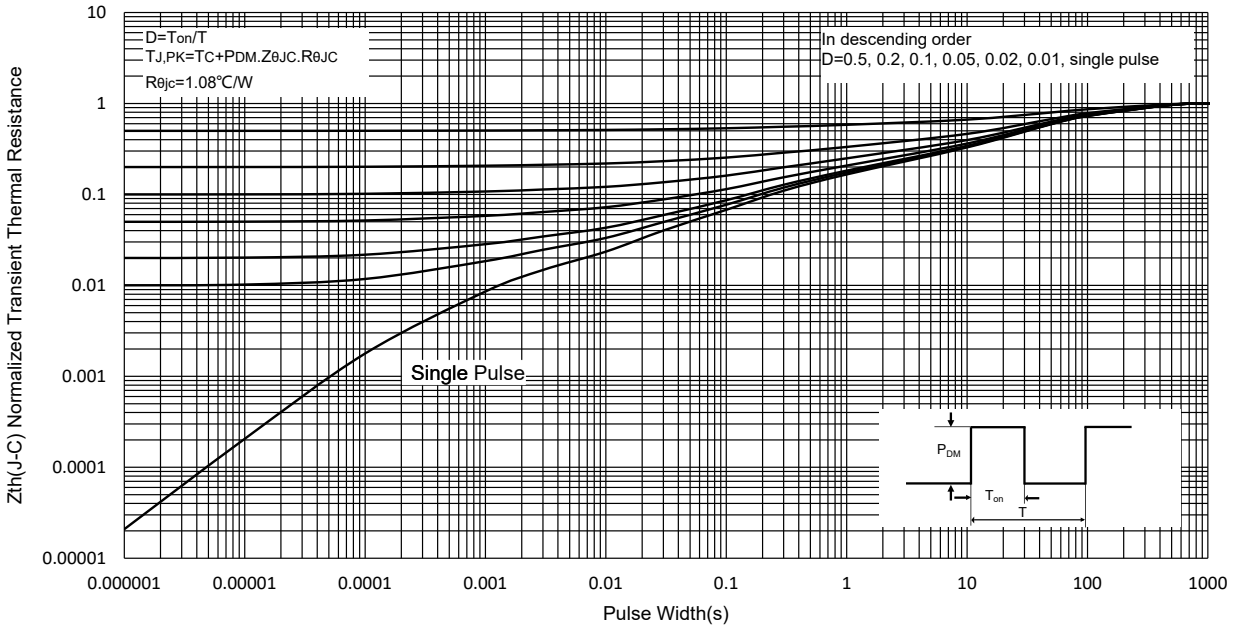


Fig.13 Normalized Transient Thermal Impedance



Ordering Information

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

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