Features

- Split Gate Trench MOSFET Technology
- Low Gate Charge
- 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

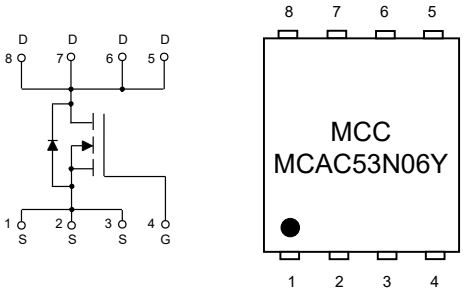
- Operating Junction Temperature Range : -55°C to +150°C
- Storage Temperature Range: -55°C to +150°C
- Thermal Resistance: 55°C/W Junction to Ambient(Note2)
- Thermal Resistance: 1.8°C/W Junction to Case

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	53	A
	T_C=100°C		34	
Pulsed Drain Current (Note 3)		I_{DM}	212	A
Total Power Dissipation(Note 4)		P_D	69	W
Single Pulse Avalanche Energy (Note 5)		E_{AS}	100	mJ

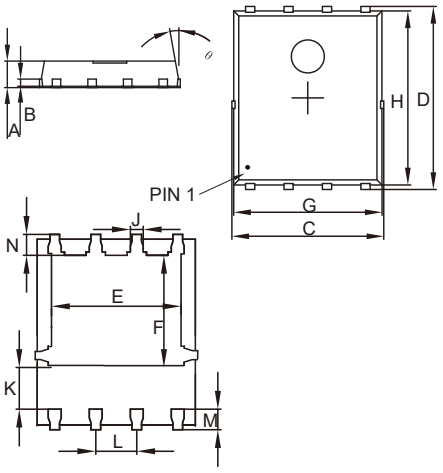
Note:

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 $R_{\theta JA}$ 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}=40V, V_{GS}=10V, L=0.5mH.

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	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	1.7	2.5	V
Drain-Source On-Resistance	$R_{DS(on)}$	V_{GS}=10V, I_D=20A		5.3	7.5	mΩ
		V_{GS}=4.5V, I_D=10A		6.9	9.5	
Gate Resistance	R_g	f=1 MHz, Open drain		1.6		Ω
Diode Characteristics						
Continuous Body Diode Current	I_S				53	A
Diode Forward Voltage	V_{SD}	V_{GS}=0V, I_S=20A			0.99	V
Reverse Recovery Time	t_{rr}	I_F=20A, dI_F/dt=500A/μs		30		ns
Reverse Recovery Charge	Q_{rr}			18		nC
Dynamic Characteristics						
Input Capacitance	C_{iss}	V_{DS}=30V,V_{GS}=0V,f=1MHz		2062		pF
Output Capacitance	C_{oss}			410		
Reverse Transfer Capacitance	C_{rss}			18		
Total Gate Charge	Q_g	V_{DS}=30V,V_{GS}=10V,I_D=20A		31		nC
Gate-Source Charge	Q_{gs}			6		
Gate-Drain Charge	Q_{gd}			5		
Turn-On Delay Time	$t_{d(on)}$	V_{DD}=30V,V_{GS}=10V, I_{DS}=20A,R_{GEN}=3Ω		10		ns
Turn-On Rise Time	t_r			34		
Turn-Off Delay Time	$t_{d(off)}$			26.2		
Turn-Off Fall Time	t_f			45		

Curve Characteristics

Fig. 1 - Typical Output Characteristics

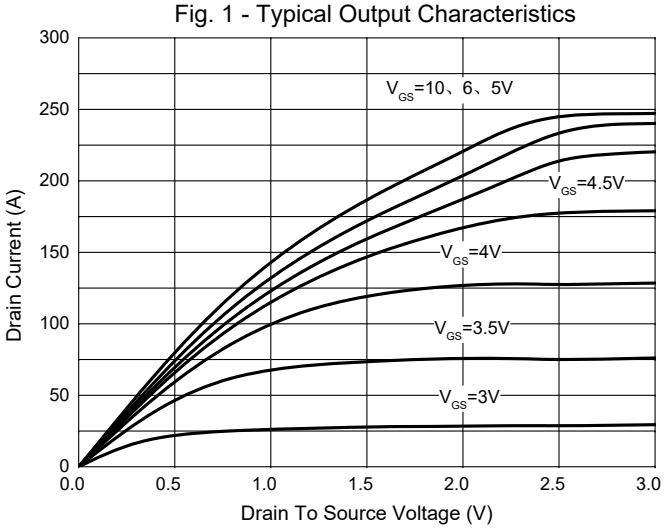


Fig. 2 - Transfer Characteristics

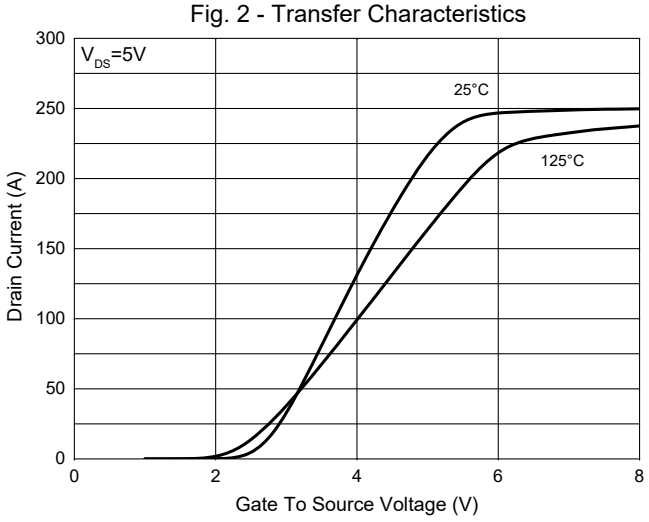


Fig. 3 - $R_{DS(ON)}$—V_{GS}

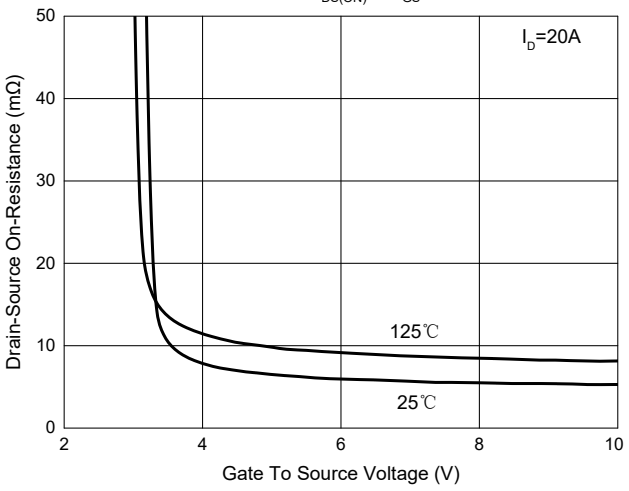


Fig. 4 - $R_{DS(ON)}$—I_D

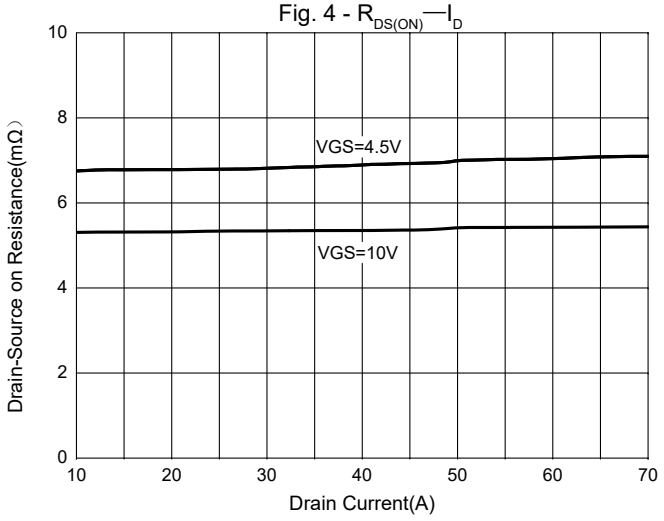


Fig. 5 - Capacitance Characteristics

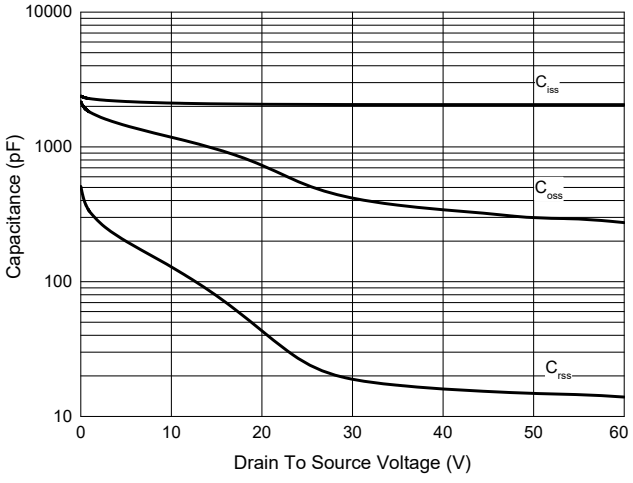
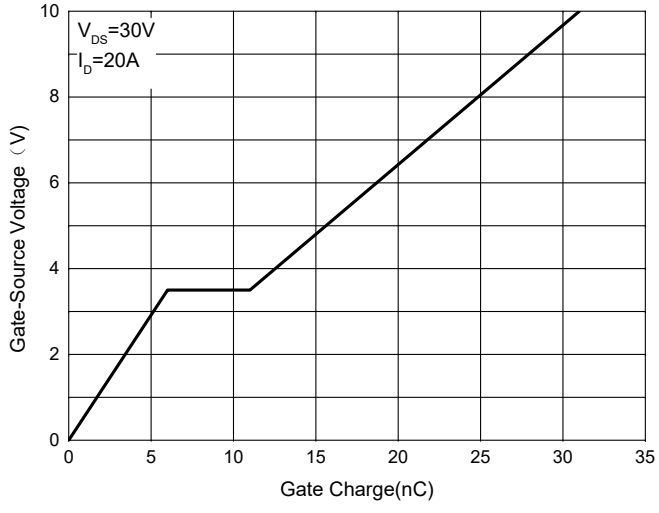


Fig. 6 - GateCharge



Curve Characteristics

Fig. 7 - Nomalized Threshold Voltage

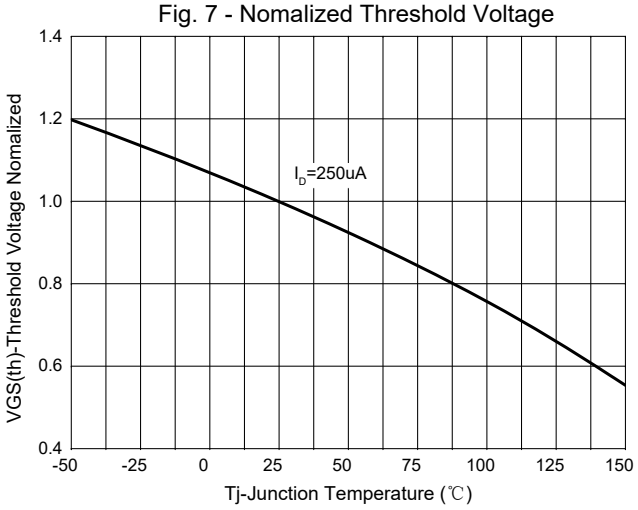


Fig.8-Normalized On Resistance Characteristics

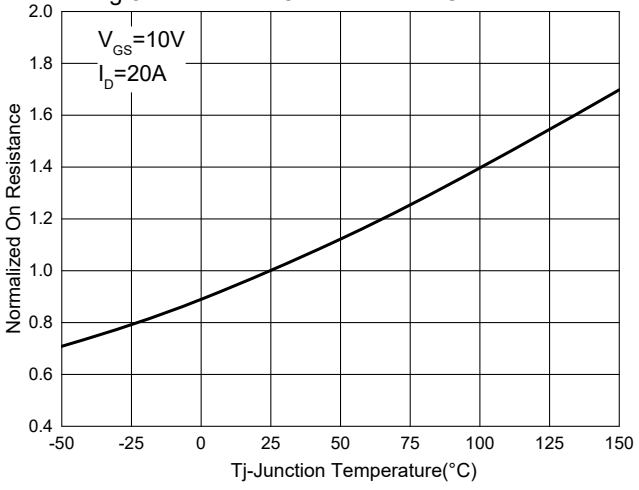


Fig. 9 - I_S—V_{SD}

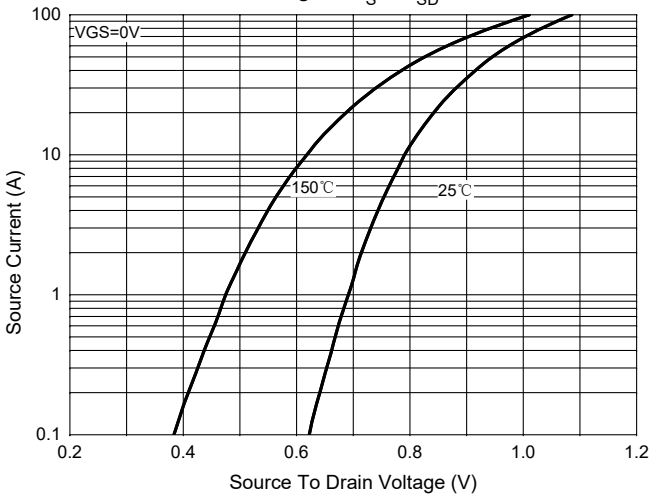


Fig. 10 - Current dissipation

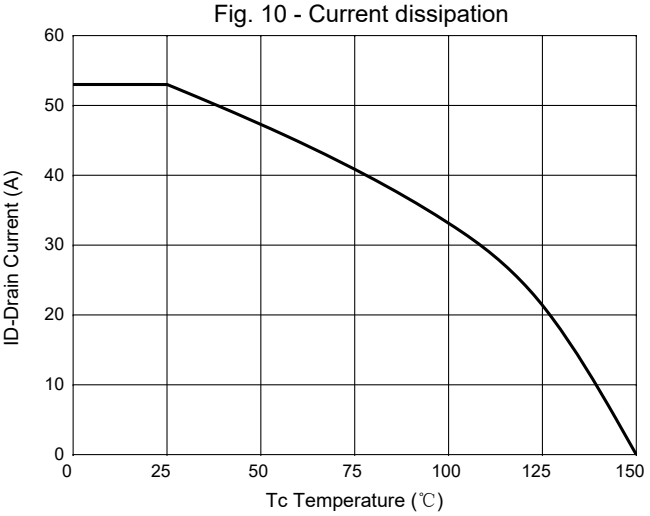
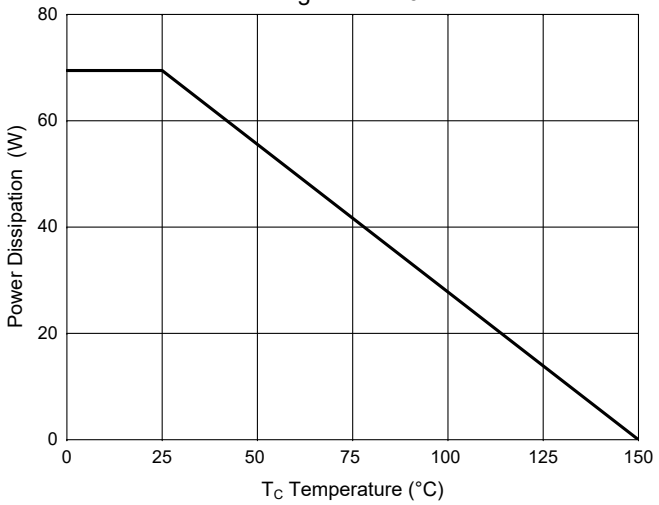


Fig.11-PD-TJ



Curve Characteristics

Fig. 12 - Safe Operation Area

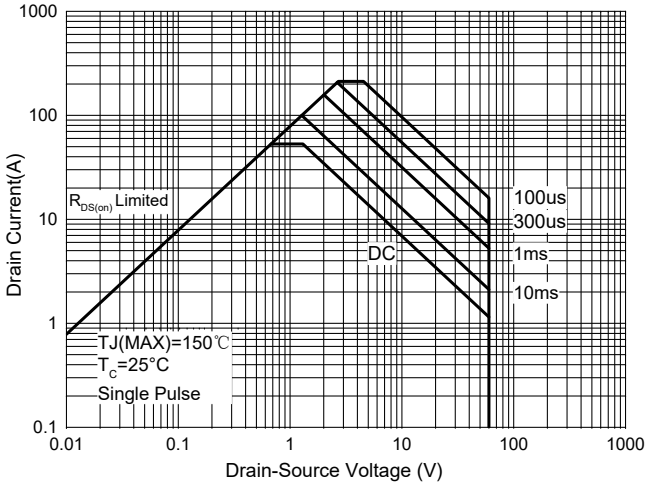
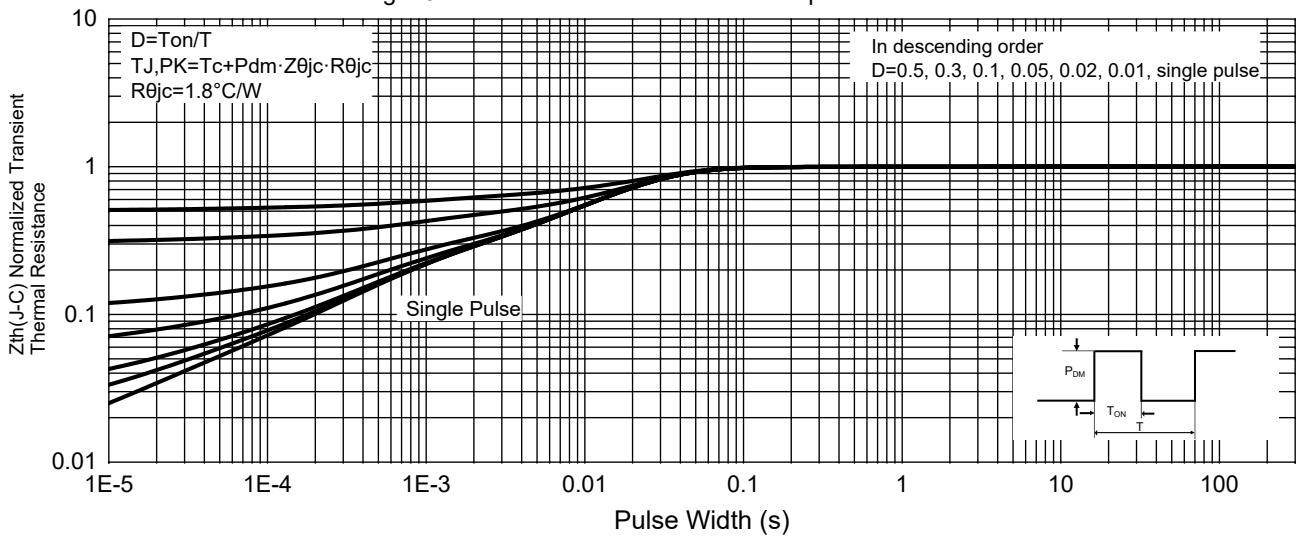


Fig. 13 -Normalized Transient Thermal Impedance



Ordering Information

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

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