Features

- Split gate trench MOSFET technology
- Excellent package for heat dissipation
- High density cell design for low RDS(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

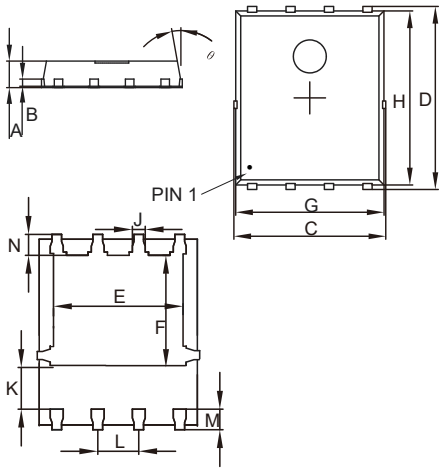
- Operating Junction Temperature Range : -55°C to +150°C
- Storage Temperature Range: -55°C to +150°C
- Thermal Resistance:50°C/W Junction to Ambient(Note2)
- Thermal Resistance:1.4°C/W Junction to Case

Parameter		Symbol	Rating	Unit
Drain-Source Voltage		V_{DS}	100	V
Gate-Source Volltage		V_{GS}	±20	V
Continuous Drain Current	T_C=25°C	I_D	55	A
	T_C=100°C		35	
Pulsed Drain Current (Note 3)		I_{DM}	220	A
Total Power Dissipation(Note4)		P_D	89	W
Single Pulse Avalanche Energy (Note 5)		E_{AS}	121	mJ

Note:

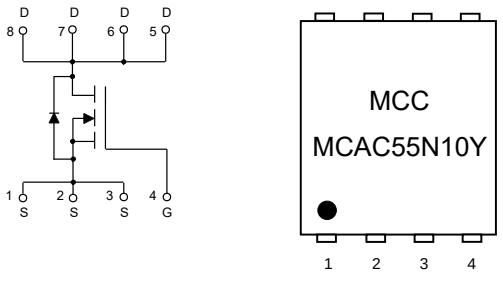
1. Halogen free "Green” products are defined as those which contain <900ppm bromine, <900ppm chlorine (<1500ppm total Br + Cl) and <1000ppm antimony compounds.
2. The value of $R_{\theta JA}$ is measured with the device mounted on 1in^2 FR-4 board with 2oz. Copper, in a still air environment with T_A =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}=50V, V_{GS}=10V, L=2mH.

DFN5060



DIMENSIONS					
DIM	INCHES		MM		NOTE
	MIN	MAX	MIN	MAX	
A	0.039	0.047	1.00	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	

Internal Structure and Marking Code



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	100			V
Gate-Source Leakage Current	I_{GSS}	V_{DS}=0V, V_{GS} =±20V			±100	nA
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}=100V, V_{GS}=0V			1	μA
Gate-Threshold Voltage	$V_{GS(th)}$	V_{DS}=V_{GS}, I_D=250μA	1	1.7	3	V
Drain-Source On-Resistance	$R_{DS(on)}$	V_{GS}=10V, I_D=20A		9	14	mΩ
		V_{GS}=4.5V, I_D=20A		12	22	
Gate Resistance	R_g	F=1 MHz, Open drain		1.4		Ω
Diode Characteristics						
Continuous Body Diode Current	I_S				55	A
Body Diode Voltage	V_{SD}	I_S=27.5A, V_{GS}=0V		0.9	1.2	V
Reverse Recovery Time	t_{rr}	I_F=27.5A di/dt=100A/μs		35		ns
Reverse Recovery Charge	Q_{rr}			26		nC
Dynamic Characteristics						
Input Capacitance	C_{iss}	V_{DS}=50V,V_{GS}=0V,f=1MHz		1800		pF
Output Capacitance	C_{oss}			590		
Reverse Transfer Capacitance	C_{rss}			20		
Total Gate Charge	Q_g	V_{DS}=50V,V_{GS}=10V,I_D=27.5A		30		nC
Gate-Source Charge	Q_{gs}			9		
Gate-Drain Charge	Q_{gd}			4		
Turn-On Delay Time	$t_{d(on)}$	V_{DD}=50V,I_D=27.5A V_{GS}=10V,R_{GEN}=3Ω		13		ns
Turn-On Rise Time	t_r			52		
Turn-Off Delay Time	$t_{d(off)}$			26		
Turn-Off Fall Time	t_f			77		

Curve Characteristics

Fig. 1 - Typical Output Characteristics

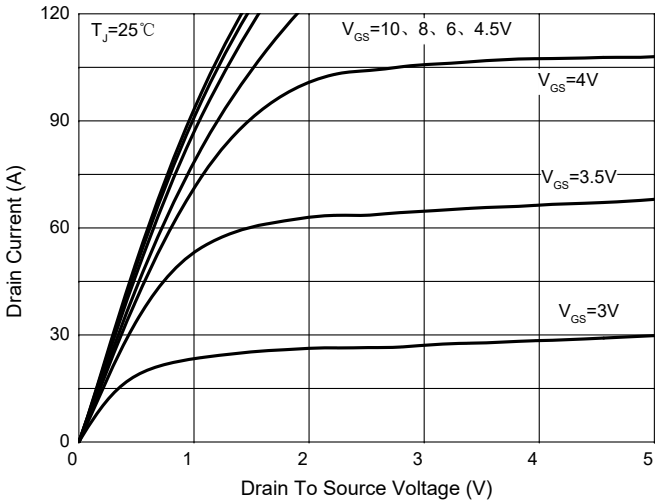


Fig. 2 - Transfer Characteristics

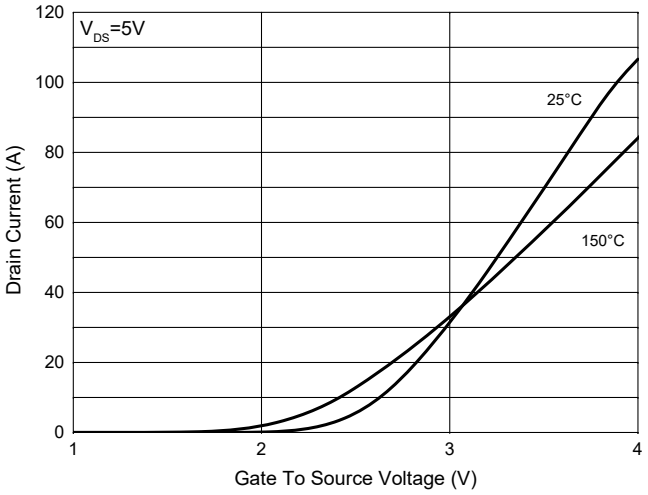


Fig. 3 - $R_{DS(ON)}$—V_{GS}

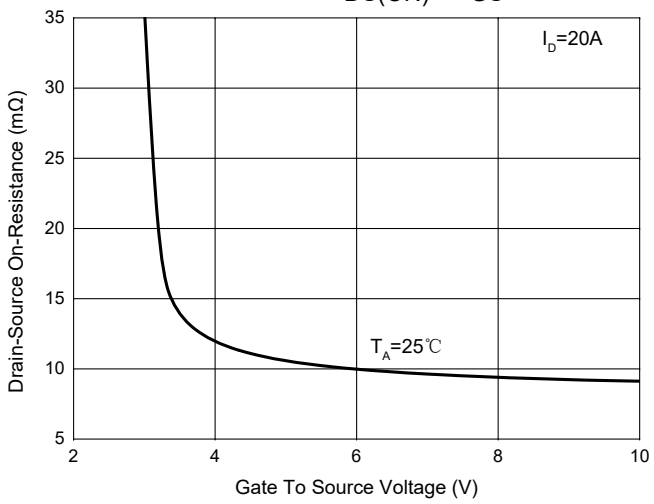


Fig. 4 - $R_{DS(ON)}$—I_D

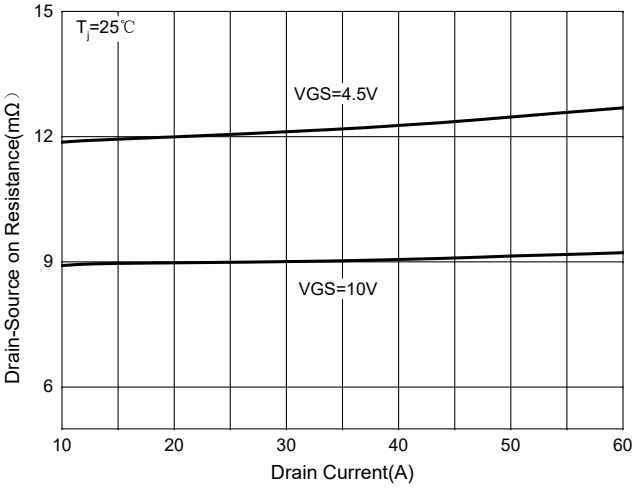


Fig. 5 - Nomalized Threshold voltage

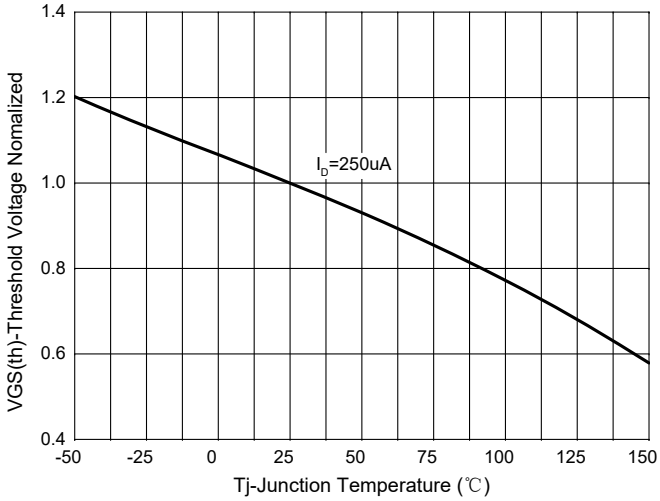
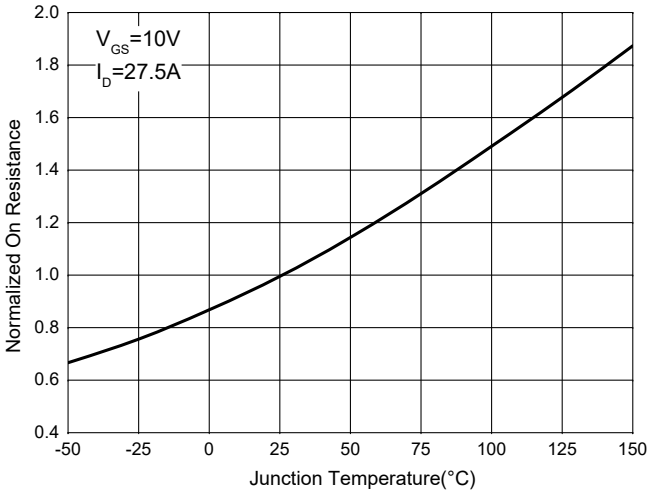


Fig.6-NormalizedOnResistanceCharacteristics



Curve Characteristics

Fig. 7 - Capacitance Characteristics

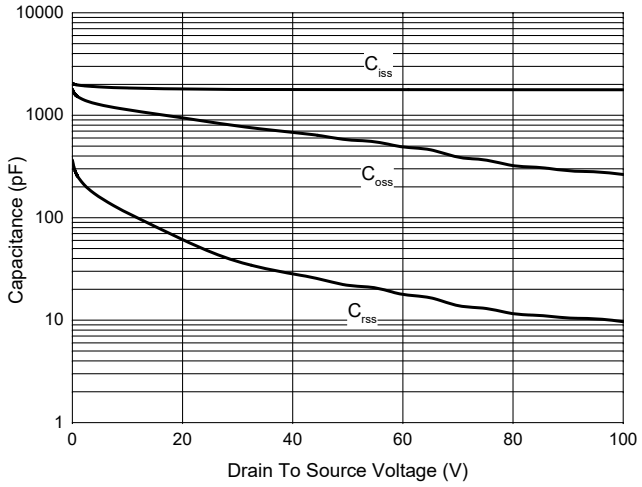


Fig. 8 - GateCharge

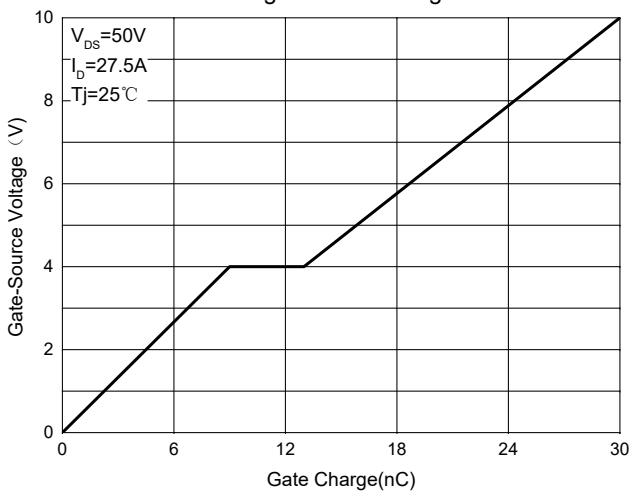


Fig.9 - I_S—V_{SD}

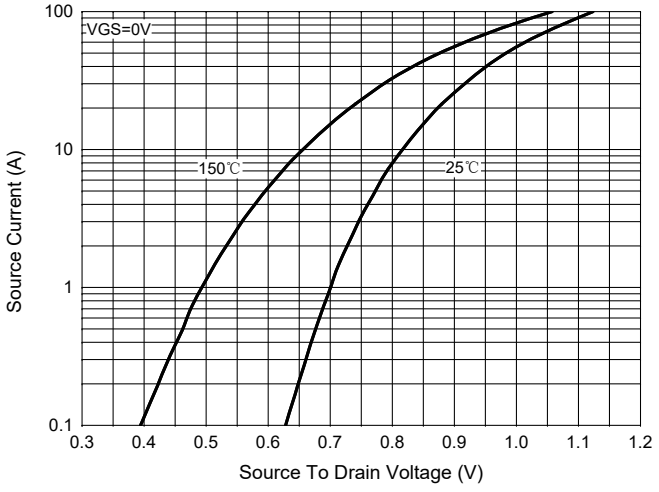


Fig. 10 - Current dissipation

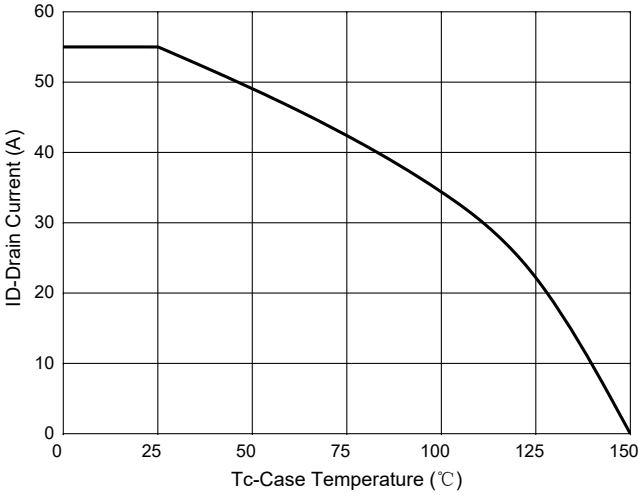
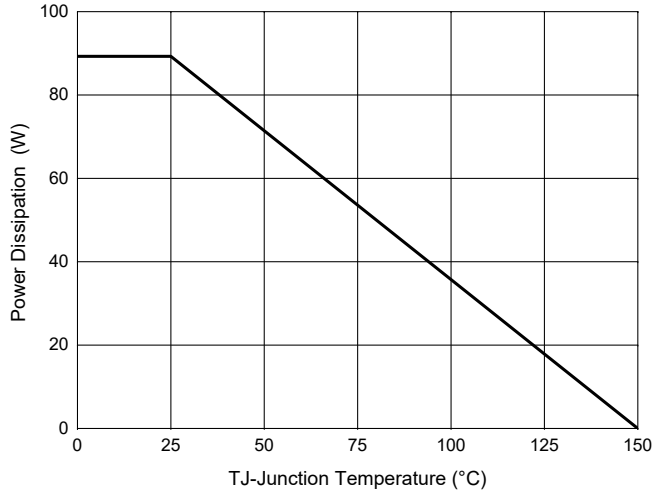


Fig.11-PD-TJ



Curve Characteristics

Fig. 12 - Safe Operation Area

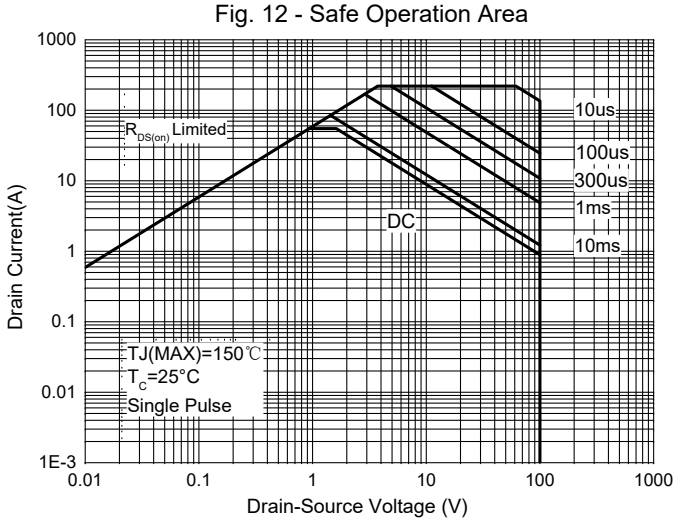
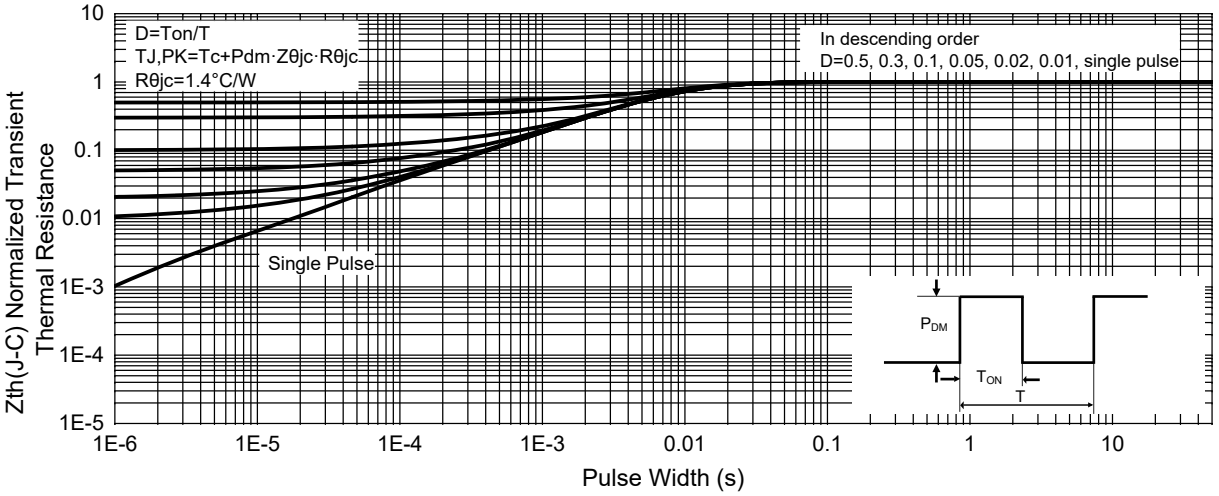


Fig. 13 -Normalized Transient Thermal Impedance



Ordering Information

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