Features

- Split Gate Trench MOSFET Technology
- Excellent Stability and Uniformity
- Lead Free Finish/RoHS Compliant ("P" Suffix Designates RoHS Compliant. See Ordering Information)
- Epoxy Meets UL 94 V-0 Flammability Rating
- Moisture Sensitivity Level 3
- Halogen Free. “Green” Device (Note 1)

P-Channel MOSFET

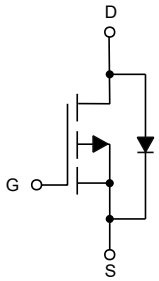
Maximum Ratings

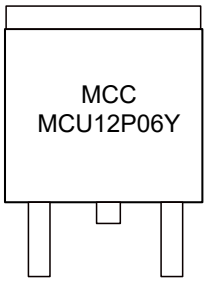
- Operating Junction Temperature Range : -55°C to +150°C
- Storage Temperature Range: -55°C to +150°C
- Thermal Resistance: 4.23°C/W Junction to Case

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	-12	A
	T_C=100°C		-7.6	
Pulsed Drain Current(Note2)		I_{DM}	-30	A
Total Power Dissipation		P_D	30	W
Single Pulsed Avalanche Energy(Note3)		E_{AS}	35	mJ

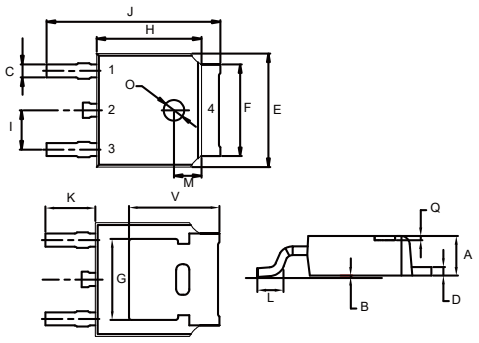
Notes:
1. Halogen free "Green” products are defined as those which contain <900ppm bromine, <900ppm chlorine (<1500ppm total Br + Cl) and <1000ppm antimony compounds.
2. Pulse Test : Pulse Width≤300μs, Duty Cycle ≤ 2%.
3. V_{DD}=-50V, R_G=25Ω, L=0.5mH, Starting TJ=25°C.

Internal Structure and Marking Code





DPAK(TO-252)



1. Gate
2,4. Drain
3. Source

DIMENSIONS					
DIM	INCHES		MM		NOTE
	MIN	MAX	MIN	MAX	
A	0.087	0.094	2.20	2.40	
B	0.000	0.005	0.00	0.13	
C	0.026	0.034	0.66	0.86	
D	0.018	0.023	0.46	0.58	
E	0.256	0.264	6.50	6.70	
F	0.201	0.215	5.10	5.46	
G	0.190		4.83		TYP.
H	0.236	0.244	6.00	6.20	
I	0.086	0.094	2.18	2.39	
J	0.386	0.409	9.80	10.40	
K	0.114		2.90		TYP.
L	0.055	0.067	1.40	1.70	
M	0.063		1.60		TYP.
O	0.043	0.051	1.10	1.30	
Q	0.000	0.012	0.00	0.30	
V	0.211		5.35		TYP.

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(Note2)	$V_{GS(th)}$	V_{DS}=V_{GS}, I_D=-250μA	-1	-1.8	-2.5	V
Drain-Source On-Resistance(Note2)	$R_{DS(on)}$	V_{GS}=-10V, I_D=-4A		65	85	mΩ
		V_{GS}=-4.5V, I_D=-2A		90	120	
Gate Resistance	R_g	F=1 MHz, Open drain		3.0		Ω
Diode Characteristics						
Source-Drain Current(Note2)	I_{SDM}				-30	A
Continuous Body Diode Current	I_S				-12	A
Diode Forward Voltage	V_{SD}	V_{GS}=0V, I_S=-1A			-1.2	V
Reverse Recovery Time	t_{rr}	I_F=-2A, dI_F/dt=100A/μs		20		ns
Reverse Recovery Charge	Q_{rr}			18		nC
Dynamic Characteristics(Note4)						
Input Capacitance	C_{iss}	V_{DS}=-15V,V_{GS}=0V,f=1MHz		505		pF
Output Capacitance	C_{oss}			133		
Reverse Transfer Capacitance	C_{rss}			30		
Total Gate Charge	Q_g	V_{DS}=-30V,V_{GS}=-4.5V,I_D=-3.1A		4.27		nC
Gate-Source Charge	Q_{gs}			2.39		
Gate-Drain Charge	Q_{gd}			1.1		
Turn-On Delay Time	$t_{d(on)}$	V_{DD}=-30V, V_{GS}=-4.5V, R_{GEN}=1Ω, I_{DS}=-2.4A		11		ns
Turn-On Rise Time	t_r			33.8		
Turn-Off Delay Time	$t_{d(off)}$			12.4		
Turn-Off Fall Time	t_f			23.2		

Note4. Guaranteed by Design, Not Subject to Production Testing.

Curve Characteristics

Fig. 1 - Typical Output Characteristics

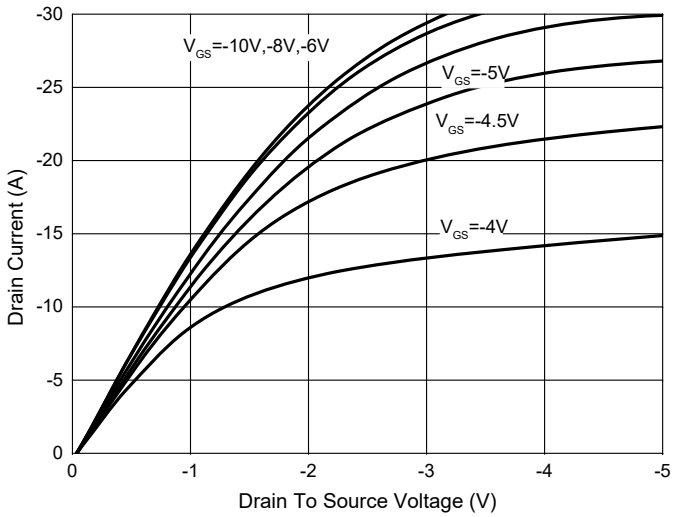


Fig. 2 - Transfer Characteristics

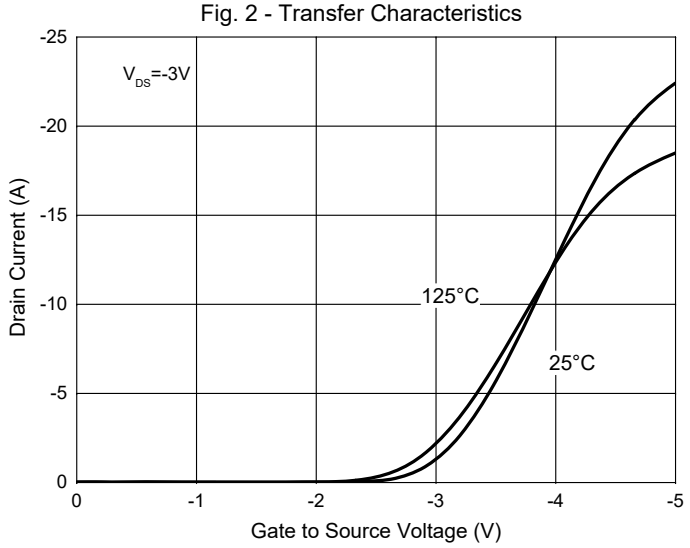


Fig.3-$R_{DS(ON)}$—I_D

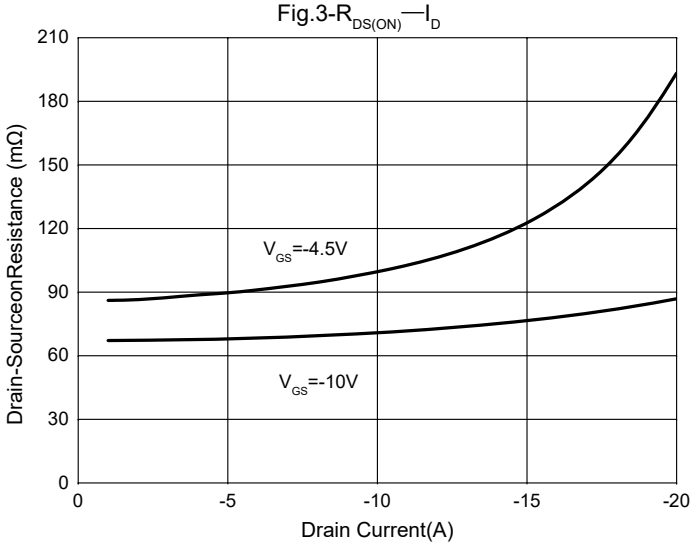


Fig. 4 - $R_{DS(ON)}$—V_{GS}

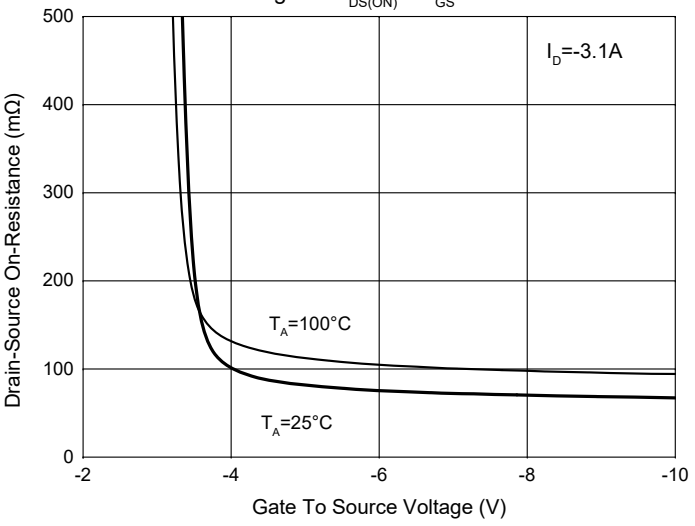


Fig. 5 - Gate Charge

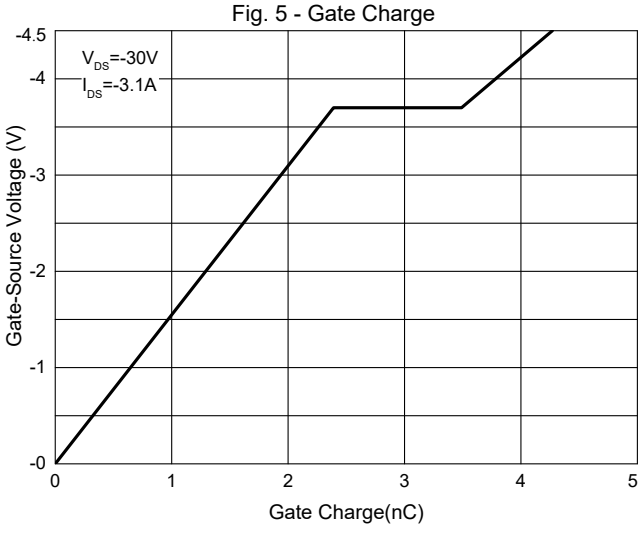
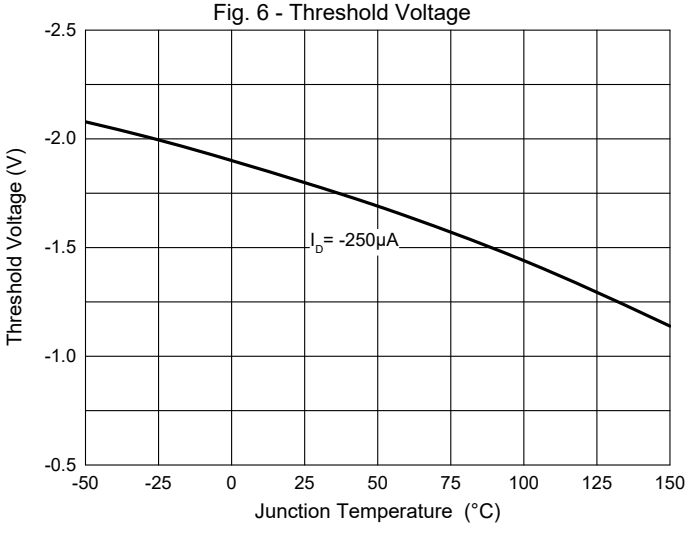


Fig. 6 - Threshold Voltage



Curve Characteristics

Fig. 7 - Normalized On Resistance Characteristics

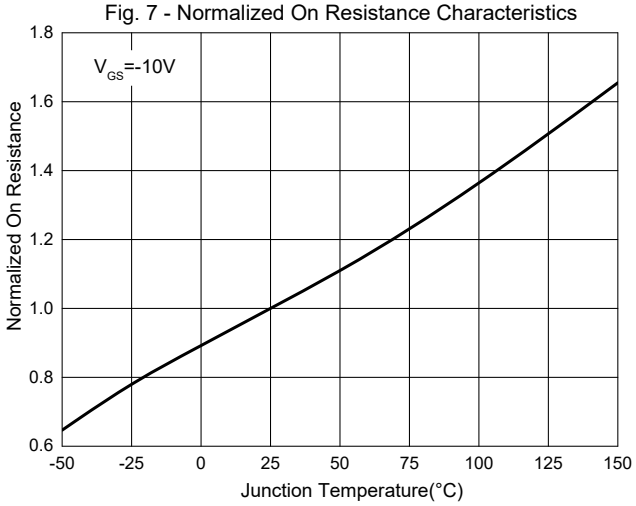


Fig. 8 - Capacitance Characteristics

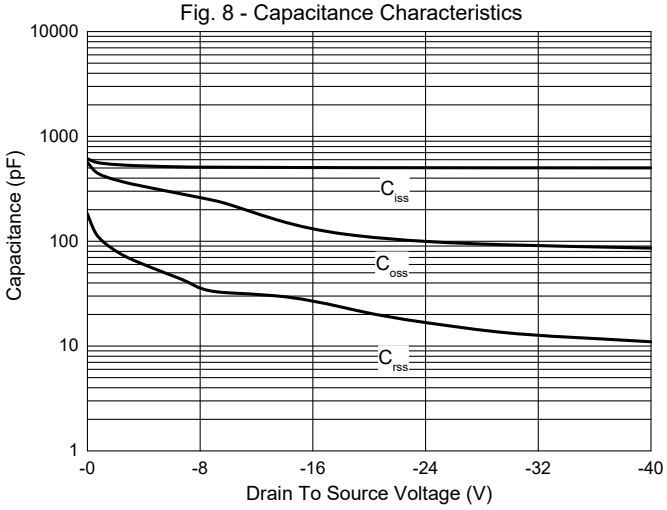


Fig. 9 - I_S—V_{SD}

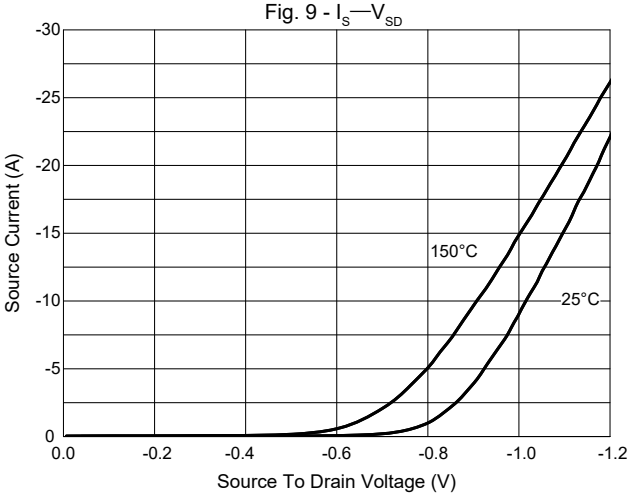


Fig. 10 - Current Dissipation

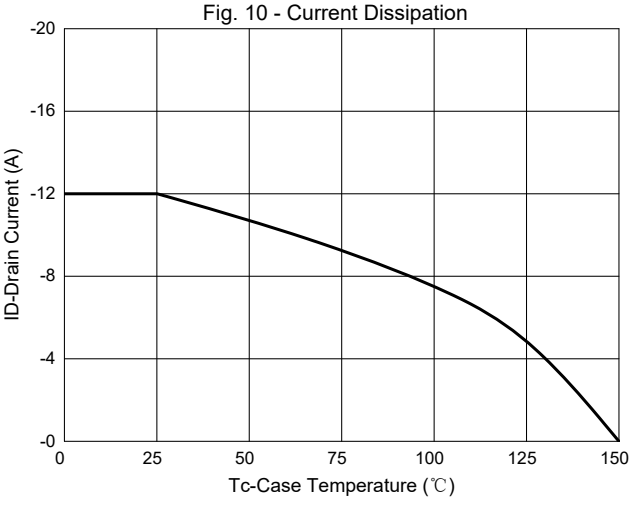
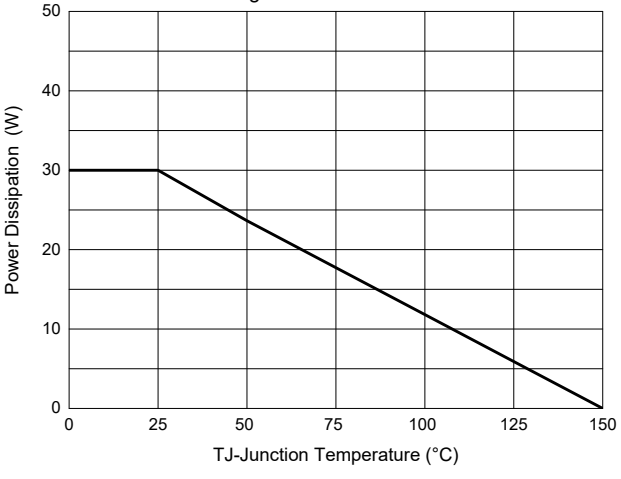


Fig. 11 - PD—TJ



Curve Characteristics

Fig. 12 - Safe Operation Area

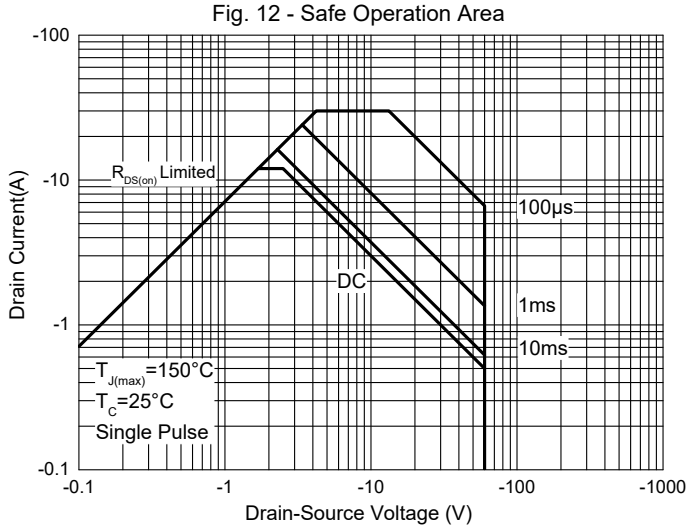
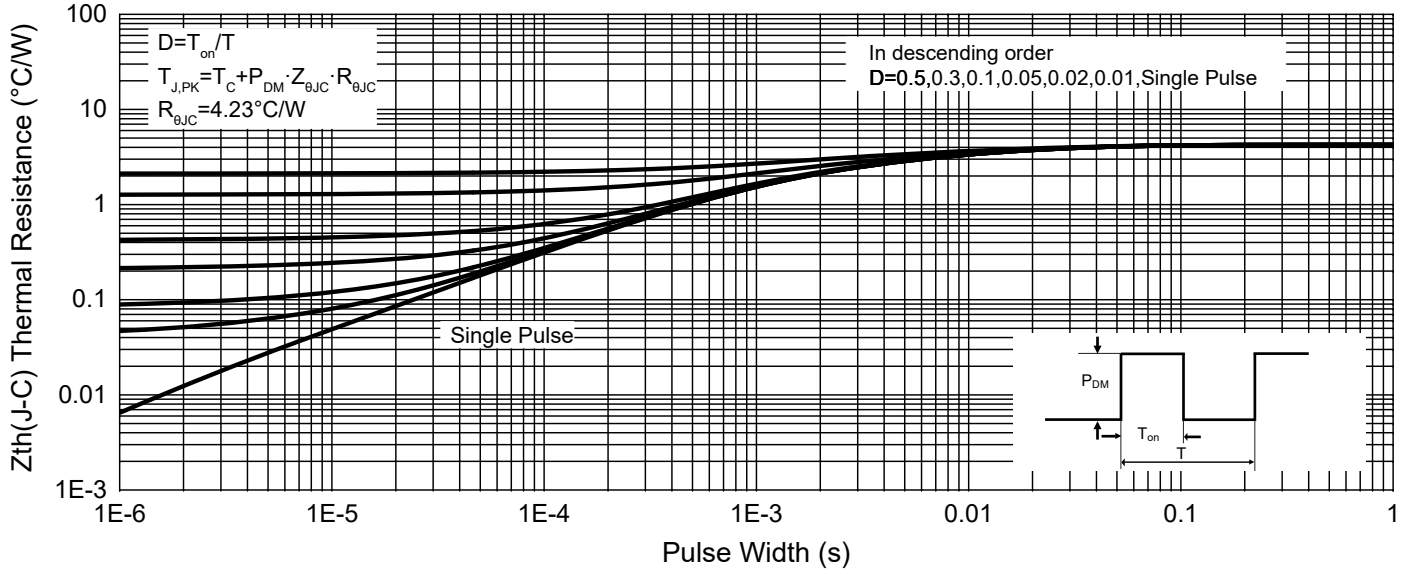


Fig. 13 - Maximum Transient Thermal Impedance



Ordering Information

Device	Packing
Part Number-TP	Tape&Reel: 2.5Kpcs/Reel

Revision History

Datasheet status	Version No	Release date	Update content
New product datasheet	Rev4-1	20230102	