Features

- Trench Power LV MOSFET Technology
- Excellent Package for Heat Dissipation
- High Density Cell Desihn 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 +175°C
- Storage Temperature Range: -55°C to +175°C
- Thermal Resistance: 5°C/W Junction to Case (Note 2)

Parameter		Symbol	Rating	Unit
Drain-Source Voltage		V_{DS}	20	V
Gate-Source Volltage		V_{GS}	±10	V
Continuous Drain Current	T_C=25°C	I_D	30	A
	T_C=100°C		21	A
Pulsed Drain Current (Note 3)		I_{DM}	125	A
Single Pulse Avalanche Energy (Note 4)		E_{AS}	100	mJ
Total Power Dissipation	T_C=25°C	P_D	30	W
	T_C=100°C		15	W

Note:

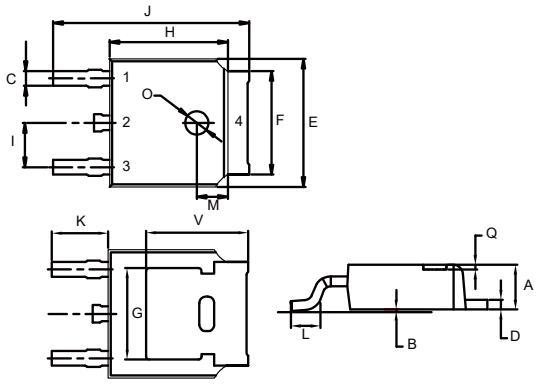
1.Halogen free "Green” products are defined as those which contain <900ppm bromine,<900ppm chlorine (<1500ppm total Br + Cl) and <1000ppm antimony compounds.

2.$R_{\theta JA}$ is the Sum of the Junction-to-Case and Case-to-Ambient Thermal Resistance, Where the Case Thermal Reference is Defined as the Solder Mounting Surface of the Drain Pins. $R_{\theta JC}$ is Guaranteed by Design, While $R_{\theta JA}$ is Determined by the Board Design. The Maximum Rating Presented Here is Based on Mounting on a 1 in ^{2} Pad of 2oz Copper.

3.Pulse Test: Pulse Width≤300μs,Duty Cycle ≤2%.

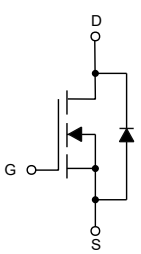
4.T_J=25°C, V_{DD}=20V, V_G=10V, L=0.5mH, R_g=25Ω

DPAK

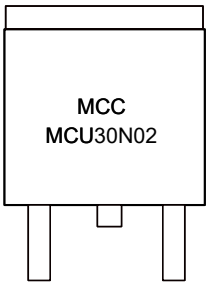


DIMENSIONS					
DIM	INCHES		MM		NOTE
	MIN	MAX	MIN	MAX	
A	0.087	0.094	2.20	2.40	
B	0.000	0.005	0.00	0.13	
C	0.026	0.034	0.66	0.86	
D	0.018	0.023	0.46	0.58	
E	0.256	0.264	6.50	6.70	
F	0.201	0.215	5.10	5.46	
G	0.190		4.83		TYP.
H	0.236	0.244	6.00	6.20	
I	0.086	0.094	2.18	2.39	
J	0.386	0.409	9.80	10.40	
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.

Internal Structure and Marking Code



1.GATE
2.DRAIN
3.SOURCE
4.DRAIN



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	20			V
Gate-Source Leakage Current	I_{GSS}	V_{DS}=0V, V_{GS} =±10V			±100	nA
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}=20V, V_{GS}=0V			1	μA
Gate-Threshold Voltage	$V_{GS(th)}$	V_{DS}=V_{GS}, I_D=250μA	0.45	0.62	1	V
Drain-Source On-Resistance	$R_{DS(on)}$	V_{GS}=4.5V, I_D=15A		5.6	7	mΩ
		V_{GS}=2.5V, I_D=7A		7.1	9	
		V_{GS}=1.8V, I_D=3A		10	14	
Diode Forward Voltage	V_{SD}	V_{GS}=0V, I_S=15A		0.9	1.2	V
Continuous Body Diode Current	I_S				30	A
Dynamic Characteristics						
Input Capacitance	C_{iss}	V_{DS}=10V,V_{GS}=0V,f=1MHz		1700		pF
Output Capacitance	C_{oss}			305		
Reverse Transfer Capacitance	C_{rss}			145		
Total Gate Charge	Q_g	V_{DS}=10V,V_{GS}=4.5V,I_D=15A		29		nC
Gate-Source Charge	Q_{gs}			6		
Gate-Drain Charge	Q_{gd}			7		
Reverse Recovery Chrage	Q_{rr}	I_S=15A, di/dt=100A/μs		23		
Reverse Recovery Time	t_{rr}			39		ns
Turn-On Delay Time	$t_{d(on)}$	V_{GS}=4.5V,V_{DD}=10V, I_D=10A, R_L=1Ω,R_{GEN}=3Ω		7		
Turn-On Rise Time	t_r			35		
Turn-Off Delay Time	$t_{d(off)}$			30		
Turn-Off Fall Time	t_f			6		

Curve Characteristics

Fig. 1 - Output Characteristics

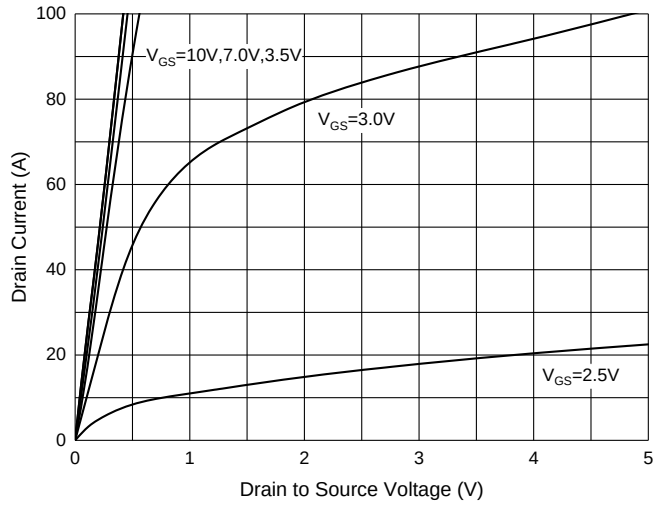


Fig. 2 - Transfer Characteristics

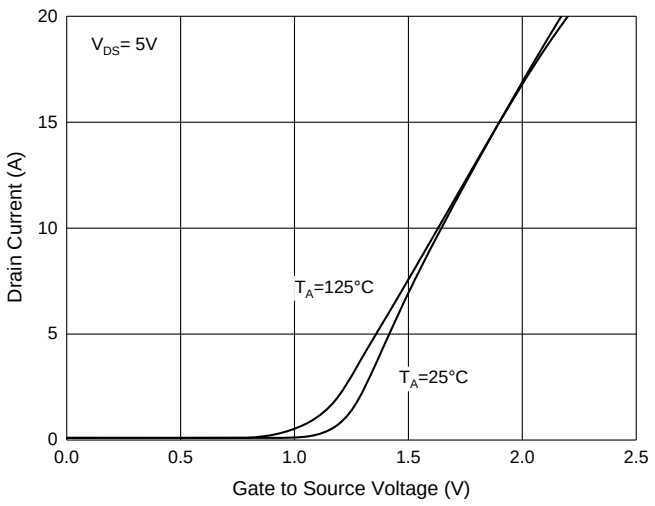


Fig. 3 - Capacitance Characteristics

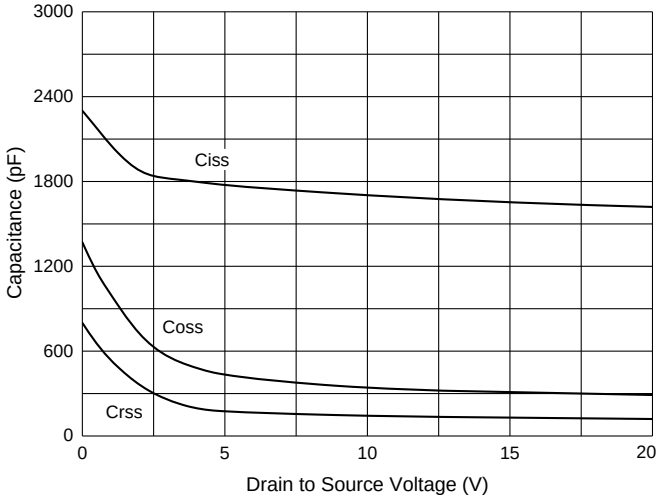


Fig. 4 - Gate Charge

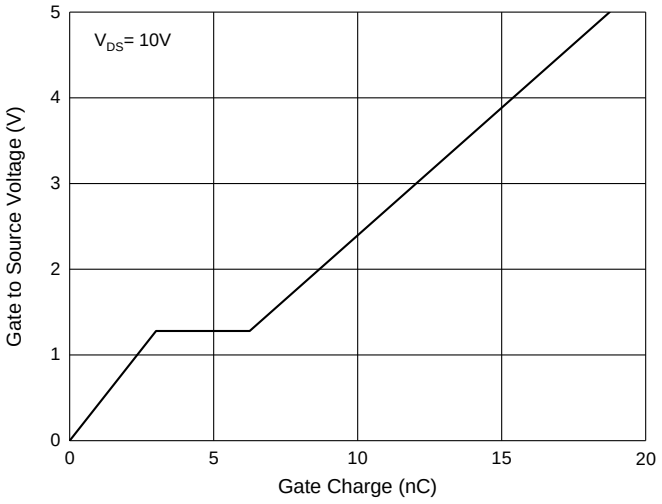


Fig. 5 - $R_{DS(ON)}$—I_D

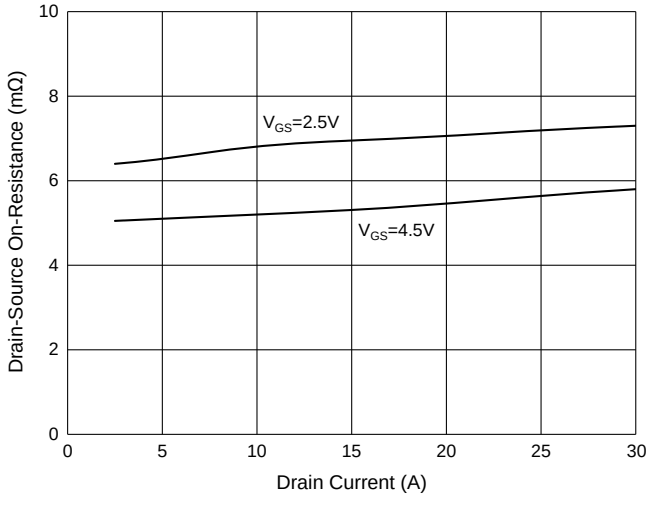
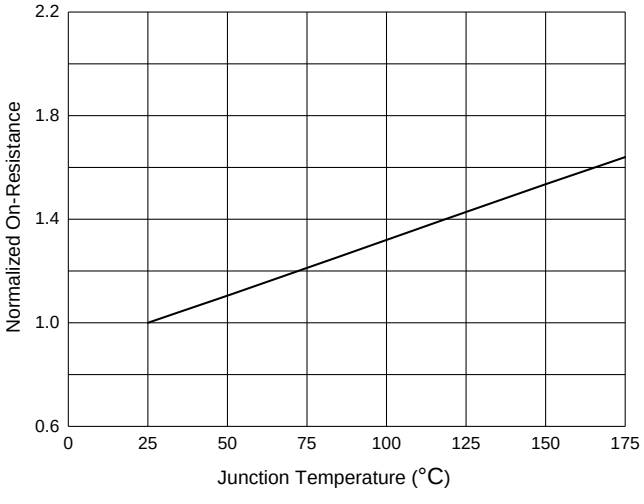


Fig. 6 - $R_{DS(ON)}$—Temperature



Ordering Information

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