

**Features**

- Trench Power LV MOSFET Technology
- Excellent Package for Heat Dissipation
- High Density Cell Desihn for Low  $R_{DS(on)}$
- Epoxy Meets UL 94 V-0 Flammability Rating
- Moisture Sensivity Level 1
- Halogen Free Available Upon Request By Adding Suffix "-HF"
- Lead Free Finish/RoHS Compliant ("P" Suffix Designates RoHS Compliant. See Ordering Information)

**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 <sup>(Note 1)</sup>

Parameter	Symbol	Rating	Unit	
Drain-Source Voltage	$V_{DS}$	20	V	
Gate-Source Voltlage	$V_{GS}$	±10	V	
Continuous Drain Current	$I_D$	$T_C=25^\circ C$	30	A
		$T_C=100^\circ C$	21	A
Pulsed Drain Current <sup>(Note 2)</sup>	$I_{DM}$	125	A	
Single Pulse Avalanche Energy <sup>(Note 3)</sup>	$E_{AS}$	100	mJ	
Total Power Dissipation	$P_D$	$T_C=25^\circ C$	30	W
		$T_C=100^\circ C$	15	W

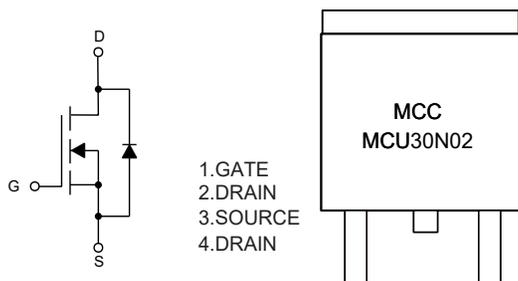
Note:

1.  $R_{\theta JA}$  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<sup>2</sup> Pad of 2oz Copper.

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

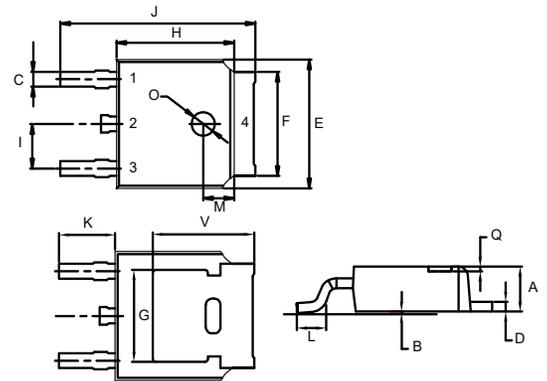
3.  $T_J=25^\circ C$ ,  $V_{DD}=20V$ ,  $V_G=10V$ ,  $L=0.5mH$ ,  $R_g=25\Omega$

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**N-CHANNEL MOSFET**

**DPAK**



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
<b>Static Characteristics</b>						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	$V_{GS}=0V, I_D=250\mu A$	20			V
Gate-Source Leakage Current	$I_{GSS}$	$V_{DS}=0V, V_{GS}=\pm 10V$			$\pm 100$	nA
Zero Gate Voltage Drain Current	$I_{DSS}$	$V_{DS}=20V, V_{GS}=0V$			1	$\mu A$
Gate-Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=250\mu A$	0.45	0.62	1	V
Drain-Source On-Resistance	$R_{DS(on)}$	$V_{GS}=4.5V, I_D=15A$		5.6	7	m $\Omega$
		$V_{GS}=2.5V, I_D=7A$		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
<b>Dynamic Characteristics</b>						
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 Charge	$Q_{rr}$	$I_S=15A, di/dt=100A/\mu s$		23		
Reverse Recovery Time	$t_{rr}$			39		
Turn-On Delay Time	$t_{d(on)}$	$V_{GS}=4.5V, V_{DD}=10V, I_D=10A, R_L=1\Omega, R_{GEN}=3\Omega$		7		ns
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

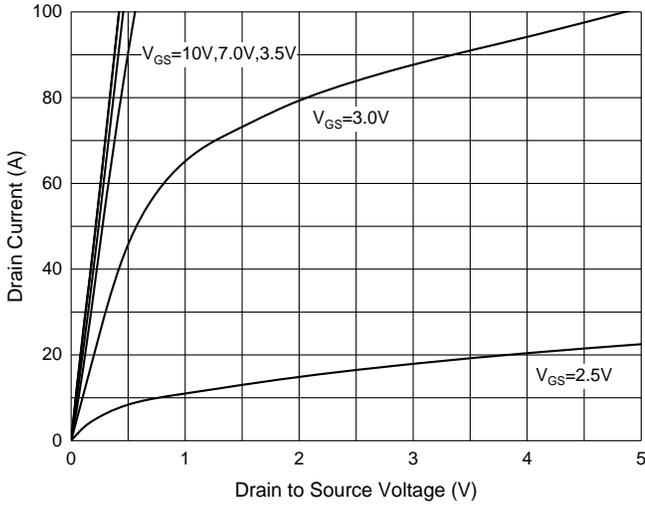


Fig. 2 - Transfer Characteristics

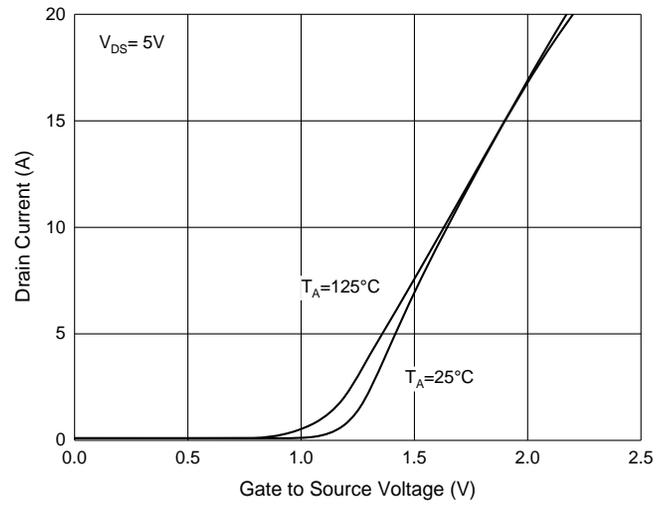


Fig. 3 - Capacitance Characteristics

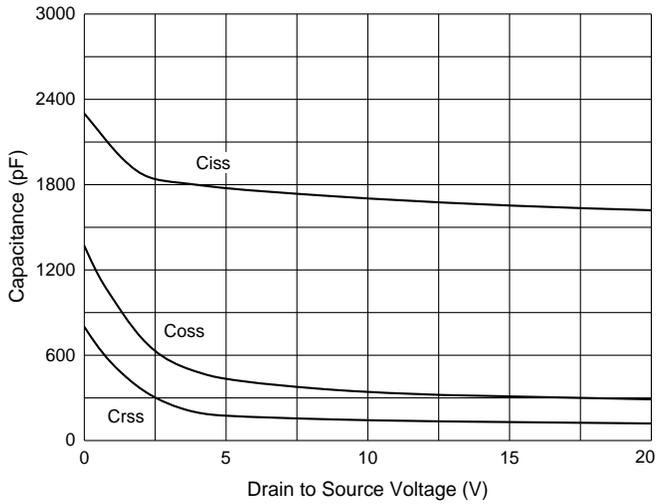


Fig. 4 - Gate Charge

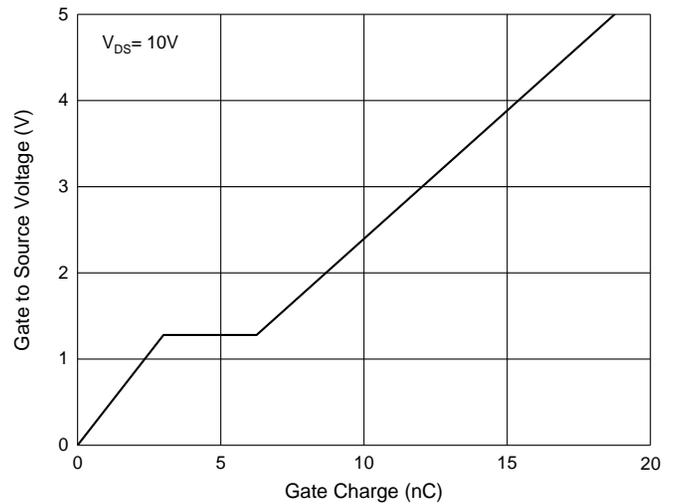


Fig. 5 -  $R_{DS(ON)} - I_D$

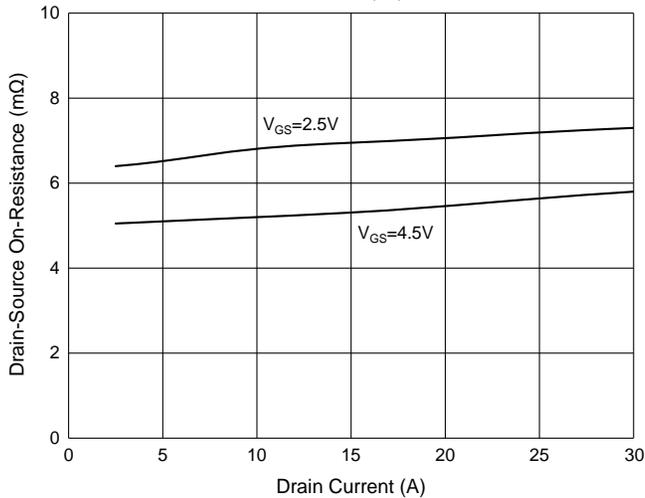
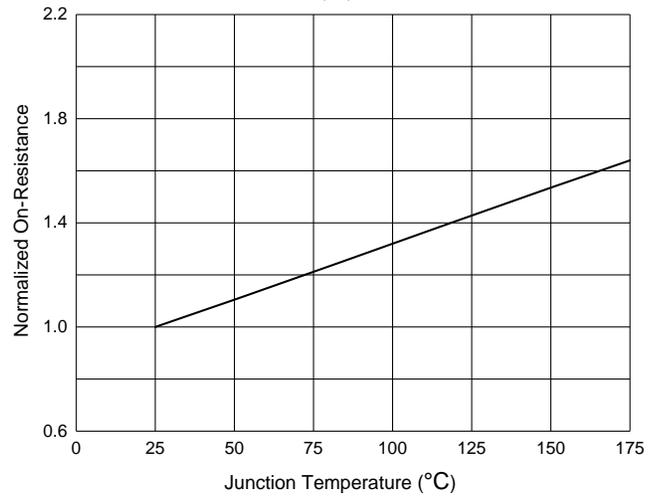


Fig. 6 -  $R_{DS(ON)} - \text{Temperature}$



## Ordering Information

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

Note : Adding "-HF" Suffix for Halogen Free, eg. Part Number-TP-HF

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