Features

- Trench Power LV MOSFET Technology
- Excellent Package for Heat Dissipation
- High Density Cell Design for Low $R_{DS(on)}$
- Epoxy Meets UL 94 V-0 Flammability Rating
- Moisture Sensitivity Level 1
- Halogen Free Available Upon Request By Adding Suffix "-HF"
- 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: 3.3°C/W Junction to Case (Note 1)

Parameter		Symbol	Rating	Unit
Drain-Source Voltage		V_{DS}	30	V
Gate-Source Volltage		V_{GS}	±20	V
Continuous Drain Current	T_C=25°C	I_D	80	A
	T_C=100°C		56	A
Pulsed Drain Current (Note 2)		I_{DM}	190	A
Single Pulse Avalanche Energy (Note 3)		E_{AS}	230	mJ
Total Power Dissipation	T_C=25°C	P_D	45	W
	T_C=100°C		22.5	W

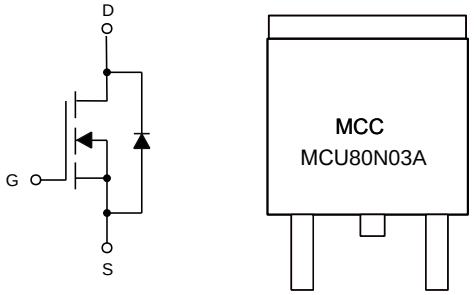
Note:

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^2 Pad of 2oz Copper.

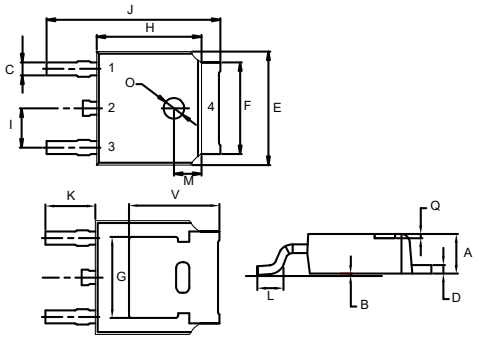
2.Pulse Test: Pulse Width≤300μs,Duty Cycle ≤2%.

3.T_J=25°C, V_{DS}=30V, V_{DD}=25V, V_{GS}=10V, L=1mH.

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	30			V
Gate-Source Leakage Current	I_{GSS}	V_{DS}=0V, V_{GS} =±20V			±100	nA
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}=30V, V_{GS}=0V			1	μA
Gate-Threshold Voltage	$V_{GS(th)}$	V_{DS}=V_{GS}, I_D=250μA	1	1.5	2.5	V
Drain-Source On-Resistance	$R_{DS(on)}$	V_{GS}=10V, I_D=20A		4.2	5.5	mΩ
		V_{GS}=4.5V, I_D=15A		5.7	8	
Diode Forward Voltage	V_{SD}	V_{GS}=0V, I_S=20A			1.2	V
Continuous Body Diode Current	I_S				80	A
Dynamic Characteristics						
Input Capacitance	C_{iss}	V_{DS}=15V,V_{GS}=0V,f=1MHz		2150		pF
Output Capacitance	C_{oss}			435		
Reverse Transfer Capacitance	C_{rss}			252		
Total Gate Charge	Q_g	V_{DS}=15V,V_{GS}=10V,I_D=20A		52.8		nC
Gate-Source Charge	Q_{gs}			12.3		
Gate-Drain Charge	Q_{gd}			10.8		
Turn-On Delay Time	$t_{d(on)}$	V_{GS}=10V,V_{DD}=20V, I_D=2A,R_L=1Ω R_{GEN}=3Ω		9		ns
Turn-On Rise Time	t_r			15.5		
Turn-Off Delay Time	$t_{d(off)}$			29		
Turn-Off Fall Time	t_f			9		
Reverse Recovery Time	t_{RR}	I_F=20A, di/dt=100A/μs		27		ns
Reverse Recovery Charge	Q_{RR}			28		nC

Curve Characteristics

Fig. 1 - Output Characteristics

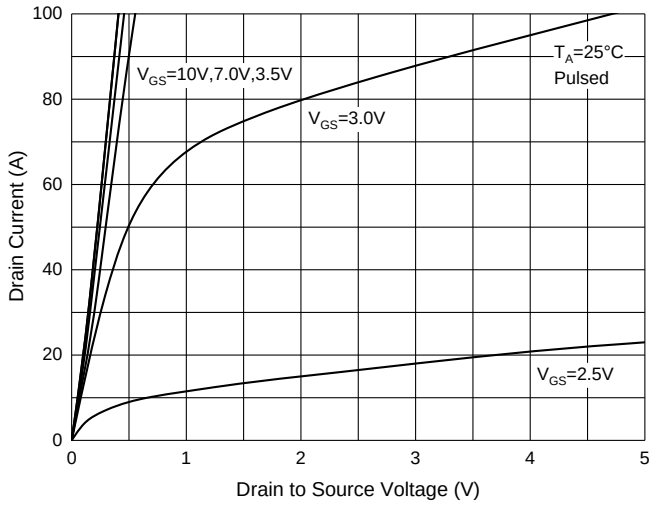


Fig. 2 - Transfer Characteristics

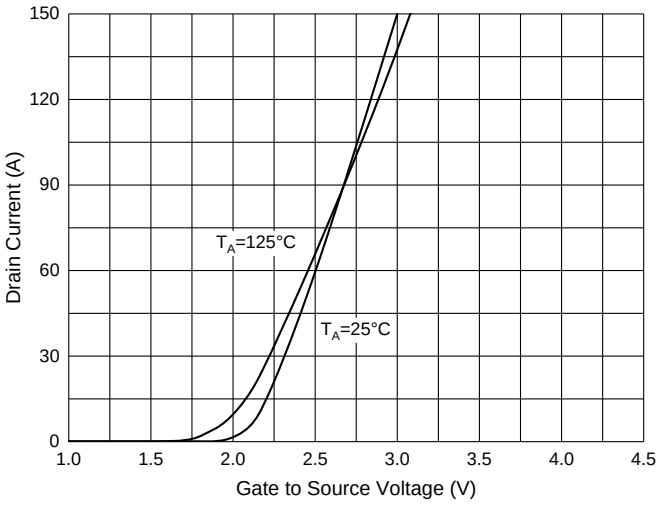


Fig. 3 - Capacitance Characteristics

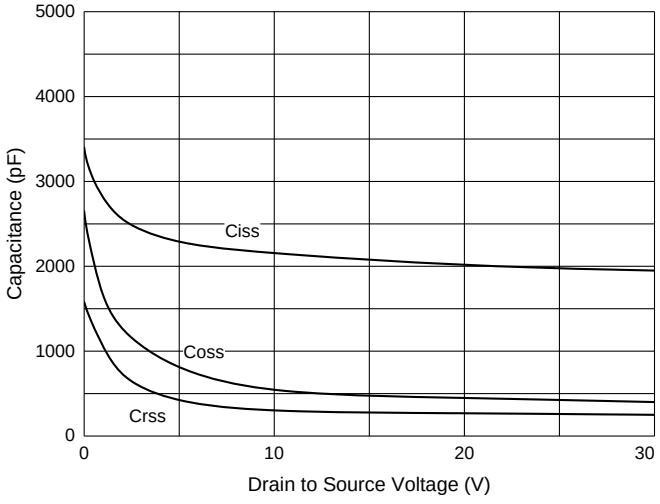


Fig. 4 - Gate Charge

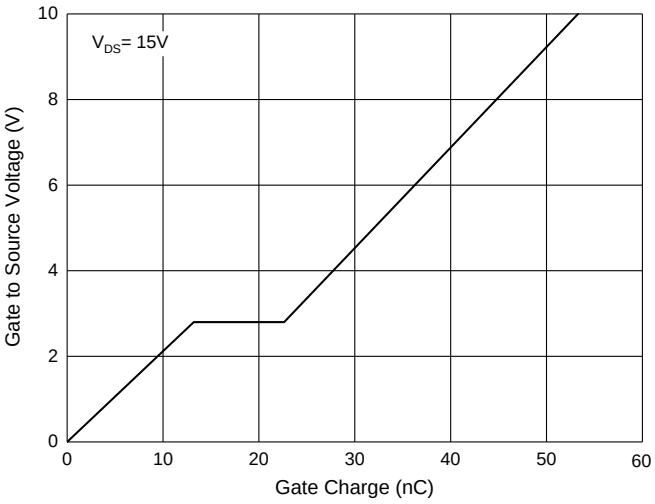


Fig. 5 - $R_{DS(ON)}$—I_D

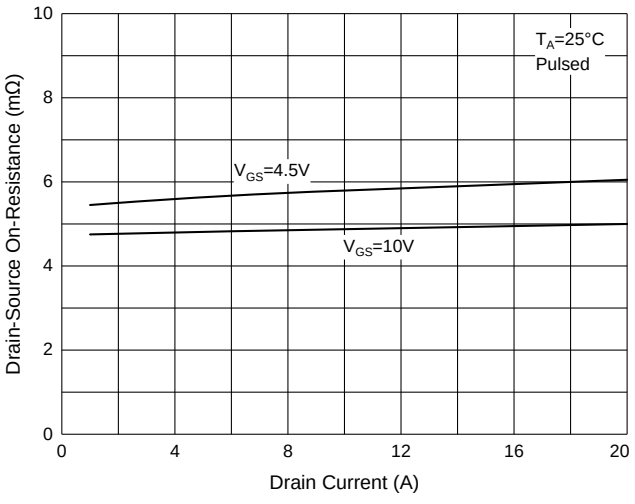
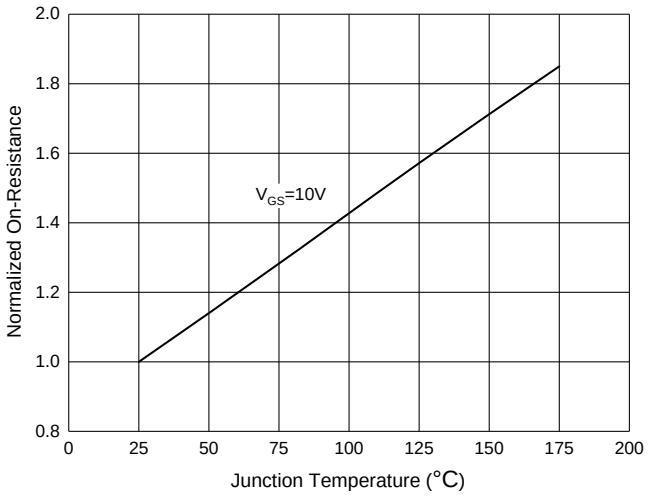


Fig. 6 - $R_{DS(ON)}$—Temperature



Ordering Information

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

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