Features

- High Current Load Applications
- Load Switching
- Hard Switched and High Frequency Circuits
- 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

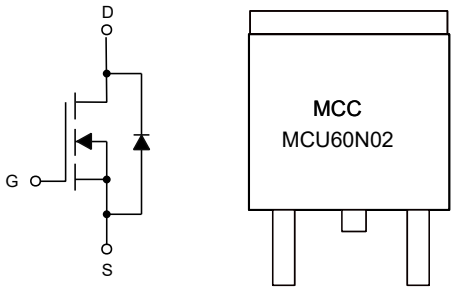
Maximum Ratings

- Operating Junction Temperature Range : -55°C to +175°C
- Storage Temperature Range: -55°C to +175°C
- Thermal Resistance: 4.3°C/W Junction to Case(Note3)

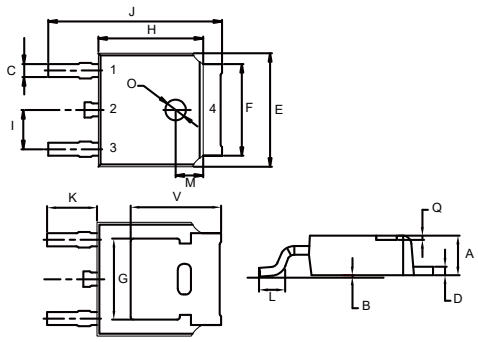
Parameter	Symbol	Rating	Unit
Drain-Source Voltage	V_{DS}	20	V
Gate-Source Volltage	V_{GS}	±10	V
Drain Current (T_C=25°C)	I_D	60	A
Drain Current (T_C=100°C)	I_D	42	A
Pulsed Drain Current(Note 1)	I_{DM}	210	A
Total Power Dissipation (T_C=25°C)	P_D	35	W
Total Power Dissipation (T_C=100°C)	P_D	18	W
Single Pulsed Avalanche Energy(Note2)	E_{AS}	195	mJ

Note:
1.Pulse Test: Pulse Width≤300us,Duty cycle ≤2%.
2.T_j=25℃, VDD=15V, VG=10V, L=0.5mH, Rg=25Ω
3.$R_{\theta JA}$ 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.

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	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	0.4	0.62	1	V
Drain-Source On-Resistance	$R_{DS(on)}$	V_{GS}=4.5V, I_D=20A		4.5	6.0	mΩ
		V_{GS}=2.5V, I_D=15A		5.5	8.8	mΩ
		V_{GS}=1.8V, I_D=10A		8.0	14	mΩ
Dynamic Characteristics						
Input Capacitance	C_{iss}	V_{DS}=10V,V_{GS}=0V,f=1MHz		2450		pF
Output Capacitance	C_{oss}			430		
Reverse Transfer Capacitance	C_{rss}			205		
Turn-On Delay Time	$t_{d(on)}$	V_{GS}=4.5V,V_{DD}=10V, I_D=10A,R_L=1Ω,R_{GEN}=3Ω		12		ns
Turn-On Rise Time	t_r			26		
Turn-Off Delay Time	$t_{d(off)}$			35		
Turn-Off Fall Time	t_f			10		
Total Gate Charge	Q_g	V_{DS}=10V,V_{GS}=4.5V,I_D=15A		65		nC
Gate-Source Charge	Q_{gs}			15		
Gate-Drain Charge	Q_{gd}			13		
Body Diode Characteristics						
Diode Forward Current	I_S				60	A
Diode Forward Voltage	V_{SD}	V_{GS}=0V, I_S=20A			1.2	V
Reverse Recovery Time	t_{rr}	I_F=15A, di/dt=100A/μs		35		ns
Reverse Recovery Charge	Q_{rr}			39		nC

Curve Characteristics

Fig. 1 - Output Characteristics

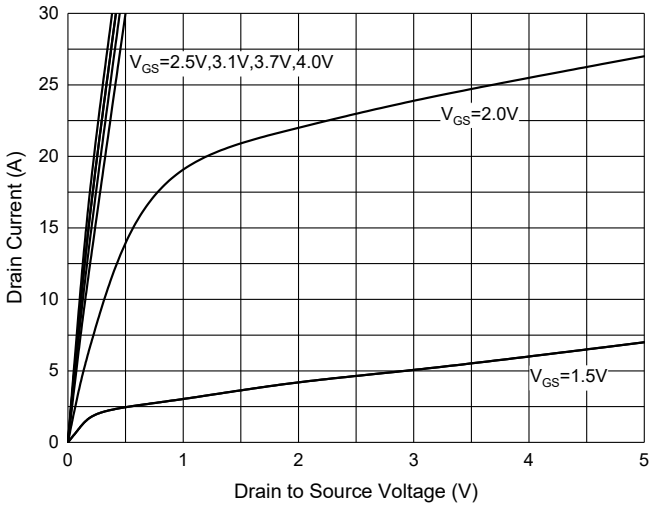


Fig. 2 - Transfer Characteristics

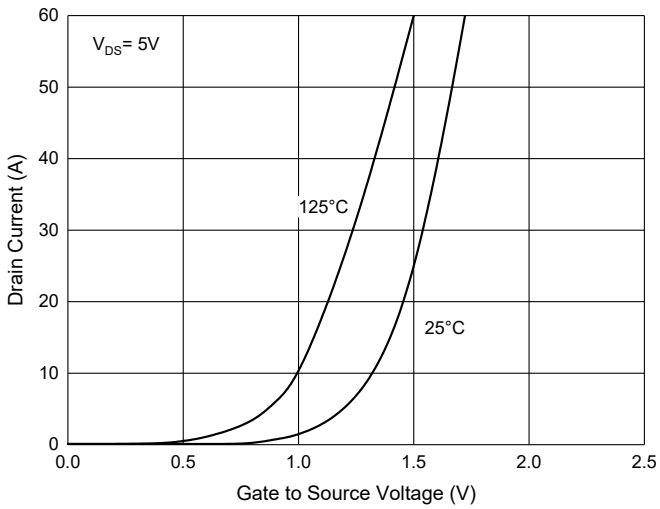


Fig. 3 - Capacitance Characteristics

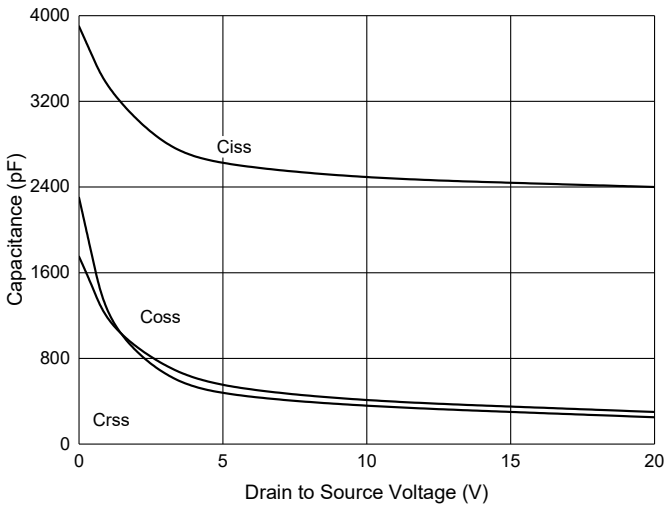


Fig. 4 - Gate Charge

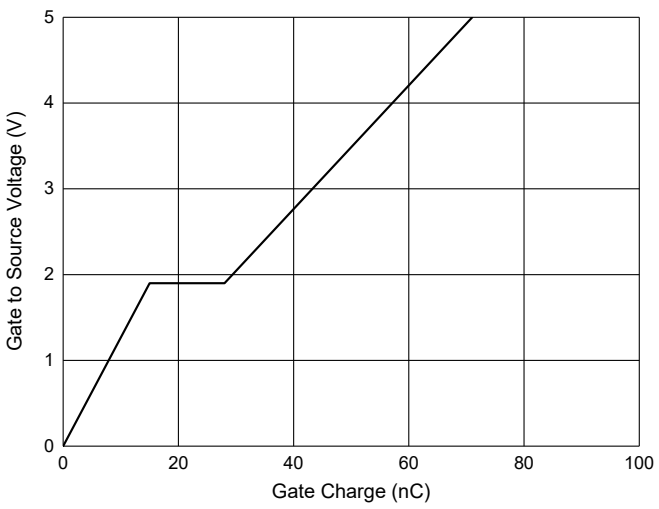


Fig. 5 - $R_{DS(ON)}$—I_D

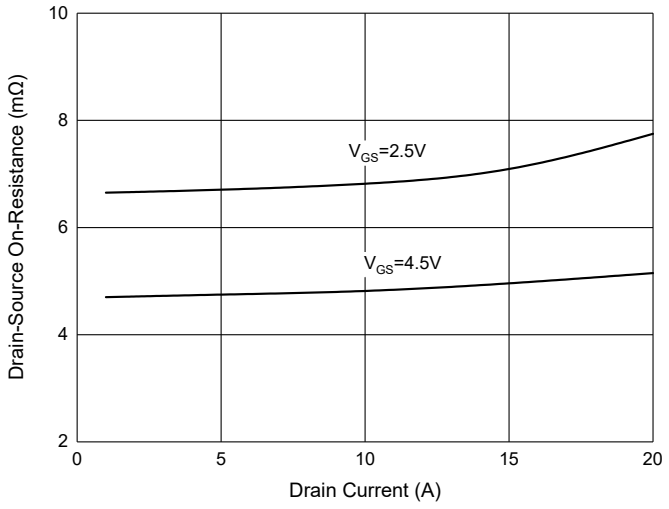
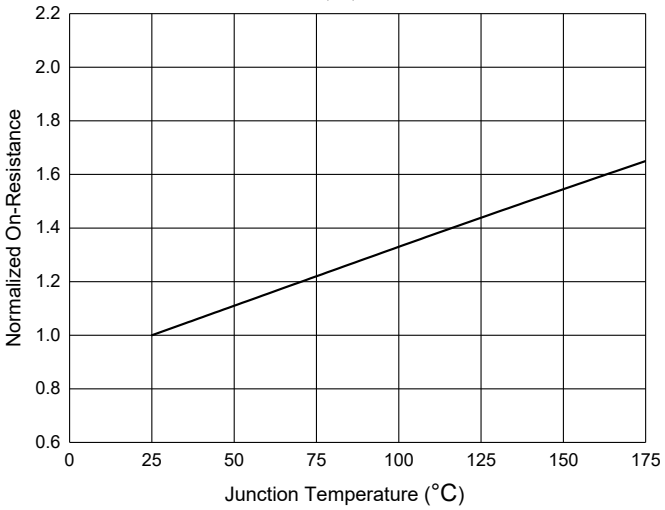


Fig. 6 - $R_{DS(ON)}$—Temperature



Ordering Information

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

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