

Features

- Trench Power MV MOSFET Technology
- Very Low On-Resistance $R_{DS(ON)}$
- 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)

Maximum Ratings

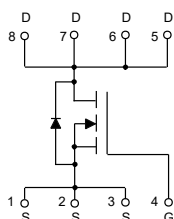
- Operating Junction Temperature Range : -55°C to +150°C
- Storage Temperature Range: -55°C to +150°C
- Thermal Resistance: 15°C/W Junction to Ambient($t \leq 10s$)^(Note 1)
- Thermal Resistance: 43°C/W Junction to Ambient(Steady-State)^(Note1,2)
- Thermal Resistance: 1.47°C/W Junction to Case(Steady-State)

Parameter		Symbol	Rating	Unit
Drain-Source Voltage		V _{DS}	60	V
Gate-Source Voltage		V _{GS}	±20	V
Continuous Drain Current ^(Note 3)	T _C =25°C	I _D	80	A
	T _C =100°C		58	A
Pulsed Drain Current ^(Note 4)		I _{DM}	320	A
Single Pulse Avalanche Energy ^(Note 4)		E _{AS}	450	mJ
Total Power Dissipation ^(Note 1)	T _C =25°C	P _D	85	W
	T _C =100°C		34	W

Note:

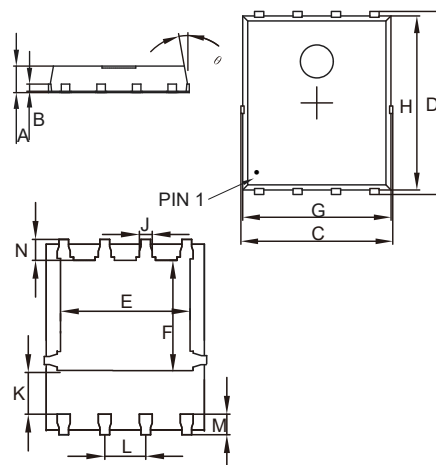
- 1.The Value of $R_{\theta JA}$ is Measured with the Device Mounted on 1in² FR - 4 Board with 2oz. Copper, in a Still Air Environment with $T_A = 25^\circ\text{C}$. The Power Dissipation P_{DSM} is Based on $R_{\theta JA}$ $t \leq 10s$ and the Maximum Allowed Junction Temperature of 150°C. The Value in Any Given Application Depends on the User's Specific Board Design.
- 2.The $R_{\theta JA}$ is the Sum of the Thermal Impedance from Junction to Case $R_{\theta JC}$ and Case to Ambient.
- 3.The Maximum Current Rating is Package Limited.
- 4.Single Pulse Width Limited by Junction Temperature $T_{J(MAX)} = 175^\circ\text{C}$.

Internal Structure



N-CHANNEL MOSFET

DFN5060



DIM	INCHES		MM		NOTE
	MIN	MAX	MIN	MAX	
A	0.031	0.047	0.80	1.20	
B	0.010		0.254		TYP.
C	0.193	0.222	4.90	5.64	
D	0.232	0.250	5.90	6.35	
E	0.148	0.167	3.75	4.25	
F	0.126	0.154	3.20	3.92	
G	0.189	0.213	4.80	5.40	
H	0.222	0.239	5.65	6.06	
K	0.045	0.059	1.15	1.50	
J	0.012	0.020	0.30	0.50	
L	0.046	0.054	1.17	1.37	
M	0.012	0.028	0.30	0.71	
N	0.016	0.028	0.40	0.71	

Electrical Characteristics @ 25°C (Unless Otherwise Specified)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Static Characteristics						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	$V_{GS}=0V, I_D=250\mu A$	60	65		V
Gate-Source Leakage Current	I_{GSS}	$V_{DS}=0V, V_{GS}=\pm 20V$			± 100	nA
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS}=60V, V_{GS}=0V$			1	μA
		$V_{DS}=60V, V_{GS}=0V, T_J=55^\circ C$			5	
Gate-Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=250\mu A$	1.1	1.7	2.5	V
Drain-Source On-Resistance	$R_{DS(on)}$	$V_{GS}=10V, I_D=20A$		3.5	4.2	m Ω
		$V_{GS}=4.5V, I_D=20A$		4	5.2	
Forward Transconductance	g_{FS}	$V_{DS}=5V, I_D=40A$	30			S
Diode Forward Voltage	V_{SD}	$V_{GS}=0V, I_S=40A$		0.85	0.99	V
Continuous Body Diode Current	I_S				80	A
Dynamic Characteristics						
Input Capacitance	C_{iss}	$V_{DS}=30V, V_{GS}=0V, f=1MHz$		3980		pF
Output Capacitance	C_{oss}			690		
Reverse Transfer Capacitance	C_{rss}			24		
Gate Resistance	R_g	$V_{DS}=0V, V_{GS}=0V, f=1MHz$		2.5		Ω
Switching Characteristics						
Total Gate Charge	Q_g	$V_{DS}=30V, V_{GS}=4.5V, I_D=40A$		32		nC
Total Gate Charge	Q_g	$V_{DS}=30V, V_{GS}=10V, I_D=40A$		67		
Gate-Source Charge	Q_{gs}			12		
Gate-Drain Charge	Q_{gd}			8.5		
Reverse Recovery Charge	Q_{rr}	$I_F=I_S, di/dt=500A/\mu s$		60		ns
Reverse Recovery Time	t_{rr}			48		
Turn-On Delay Time	$t_{d(on)}$	$V_{GS}=10V, V_{DS}=15V, R_L=2.5\Omega, R_{GEN}=3\Omega$		15		
Turn-On Rise Time	t_r			8		
Turn-Off Delay Time	$t_{d(off)}$			48		
Turn-Off Fall Time	t_f			12		

Curve Characteristics

Fig. 1 - Output Characteristics

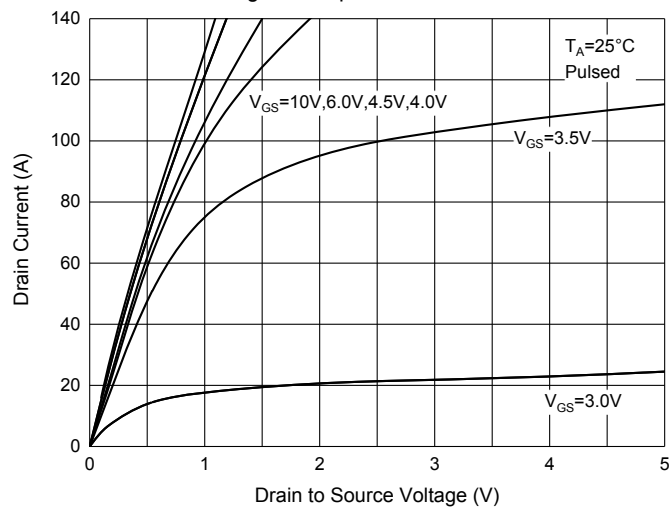


Fig. 2 - Transfer Characteristics

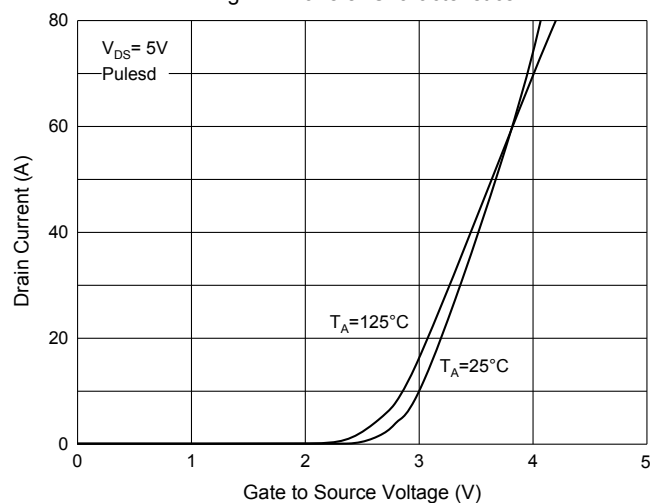


Fig. 3 - $R_{DS(ON)} - I_D$

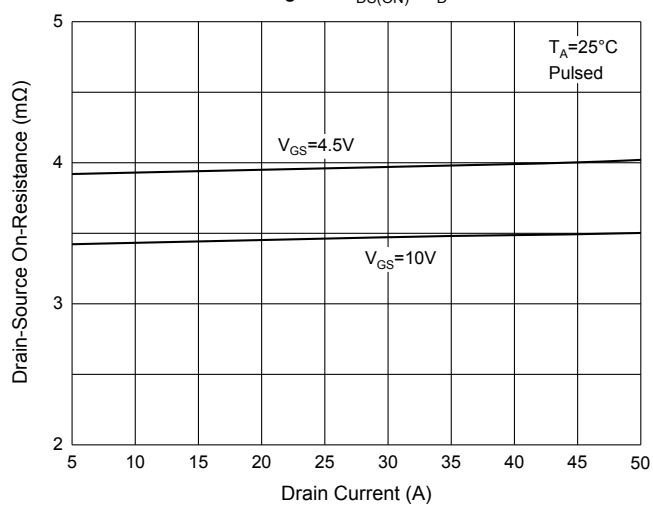


Fig. 4 - $I_S - V_{SD}$

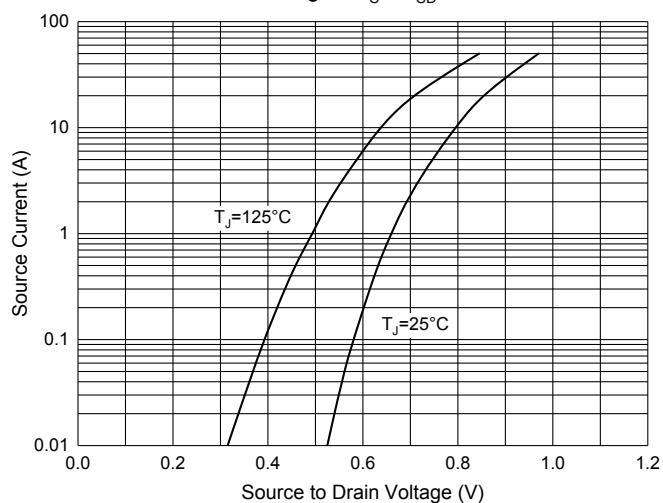


Fig. 5 - Gate Charge

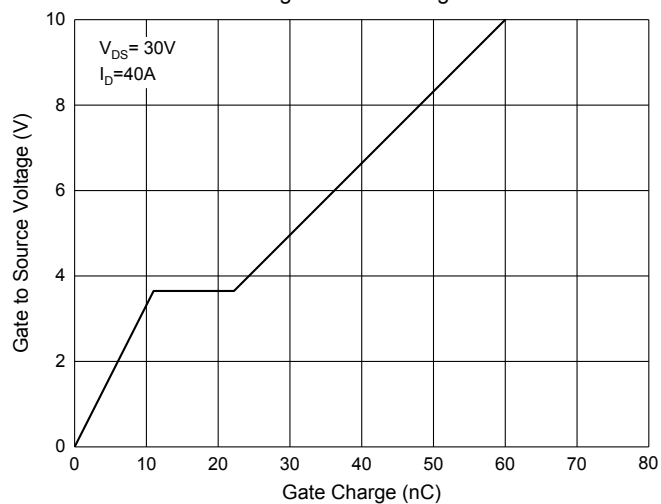
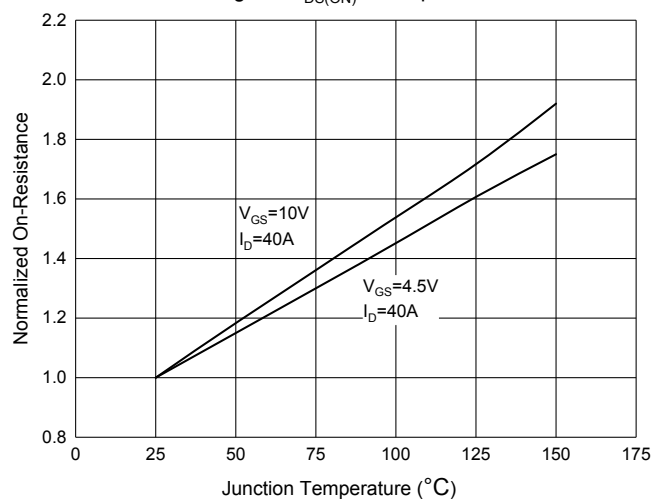


Fig. 6 - $R_{DS(ON)} - \text{Temperature}$



Ordering Information

Device	Packing
Part Number-TP	Tape&Reel: 5Kpcs/Reel

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

IMPORTANT NOTICE

Micro Commercial Components Corp. reserves the right to make changes without further notice to any product herein to make corrections, modifications , enhancements , improvements , or other changes . **Micro Commercial Components Corp.** does not assume any liability arising out of the application or use of any product described herein; neither does it convey any license under its patent rights ,nor the rights of others . The user of products in such applications shall assume all risks of such use and will agree to hold **Micro Commercial Components Corp.** and all the companies whose products are represented on our website, harmless against all damages.

LIFE SUPPORT

MCC's products are not authorized for use as critical components in life support devices or systems without the express written approval of Micro Commercial Components Corporation.

CUSTOMER AWARENESS

Counterfeiting of semiconductor parts is a growing problem in the industry. Micro Commercial Components (MCC) is taking strong measures to protect ourselves and our customers from the proliferation of counterfeit parts. MCC strongly encourages customers to purchase MCC parts either directly from MCC or from Authorized MCC Distributors who are listed by country on our web page cited below. Products customers buy either from MCC directly or from Authorized MCC Distributors are genuine parts, have full traceability, meet MCC's quality standards for handling and storage. **MCC will not provide any warranty coverage or other assistance for parts bought from Unauthorized Sources.** MCC is committed to combat this global problem and encourage our customers to do their part in stopping this practice by buying direct or from authorized distributors.

Mouser Electronics

Authorized Distributor

Click to View Pricing, Inventory, Delivery & Lifecycle Information:

[Micro Commercial Components \(MCC\):](#)

[MCAC80N06Y-TP](#)