

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
- Halogen Free. "Green" Device (Note 1)
- Lead Free Finish/RoHS Compliant ("P" Suffix Designates RoHS Compliant. See Ordering Information)
- Moisture Sensitivity Level 1

Maximum Ratings

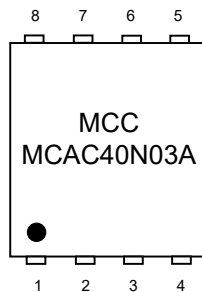
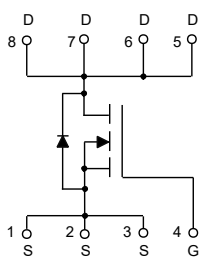
- Operating Junction Temperature Range : -55°C to +150°C
- Storage Temperature Range: -55°C to +150°C
- Thermal Resistance: 3.5°C/W Junction to Case

Parameter	Symbol	Rating	Unit	
Drain-Source Voltage	V_{DS}	30	V	
Gate-Source Voltage	V_{GS}	±20	V	
Continuous Drain Current	I_D	$T_C=25^\circ C$	40	A
		$T_C=100^\circ C$	25	A
Pulsed Drain Current (Note 2)	I_{DM}	140	A	
Avalanche Energy (Note 3)	E_{AS}	55	mJ	
Total Power Dissipation	P_D	35	W	

Note:

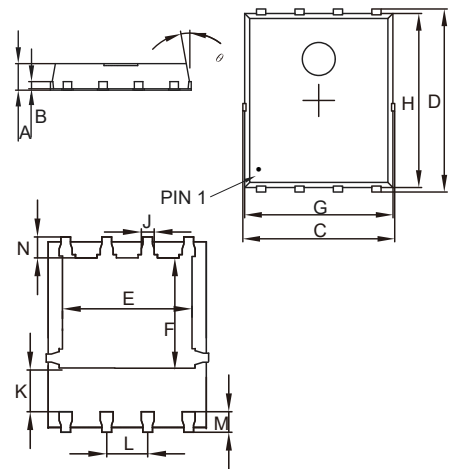
1. Halogen free "Green" products are defined as those which contain <900ppm bromine, <900ppm chlorine (<1500ppm total Br + Cl) and <1000ppm antimony compounds.
2. Pulse Test: Pulse Width ≤ 300µs, Duty Cycle ≤ 2%.
3. $T_J=25^\circ C$, $V_{DD}=20V$, $V_G=10V$, $L=0.5mH$, $R_G=25\Omega$.

Internal Structure and Marking Code



N-CHANNEL MOSFET

DFN5060



DIM	DIMENSIONS				NOTE
	INCHES		MM		
	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	$V_{(BR)DSS}$	$V_{GS}=0V, I_D=250\mu A$	30			V
Gate-Source Leakage Current	I_{GSS}	$V_{DS}=0V, V_{GS}=\pm 20V$			± 100	nA
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS}=30V, V_{GS}=0V$			1	μA
Gate-Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=250\mu A$	1	1.5	2.5	V
Drain-Source On-Resistance ^(Note2)	$R_{DS(on)}$	$V_{GS}=10V, I_D=15A$		5.5	7.5	m Ω
		$V_{GS}=4.5V, I_D=15A$		9.5	11.5	m Ω
Diode Characteristics						
Continuous Body Diode Current	I_S				40	A
Diode Forward Voltage	V_{SD}	$V_{GS}=0V, I_S=20A$			1.2	V
Reverse Recovery Time	t_{rr}	$I_S=25A, di/dt=100A/\mu s$		5		ns
Reverse Recovery Charge	Q_{rr}			0.2		nC
Dynamic Characteristics^(Note4)						
Input Capacitance	C_{iss}	$V_{DS}=15V, V_{GS}=0V, f=1MHz$		1050		pF
Output Capacitance	C_{oss}			200		
Reverse Transfer Capacitance	C_{rss}			165		
Total Gate Charge	Q_g	$V_{DS}=20V, V_{GS}=10V, I_D=20A$		23.5		nC
Gate-Source Charge	Q_{gs}			3.9		
Gate-Drain Charge	Q_{gd}			7		
Turn-On Delay Time	$t_{d(on)}$	$V_{DS}=20V, V_{GS}=10V,$ $R_G=3\Omega, R_L=1\Omega,$ $I_{DS}=2A$		7		ns
Turn-On Rise Time	t_r			19		
Turn-Off Delay Time	$t_{d(off)}$			24		
Turn-Off Fall Time	t_f			24		

Note: 4. Guaranteed by design, not subject to production testing.

Curve Characteristics

Fig. 1 - Typical Output Characteristics

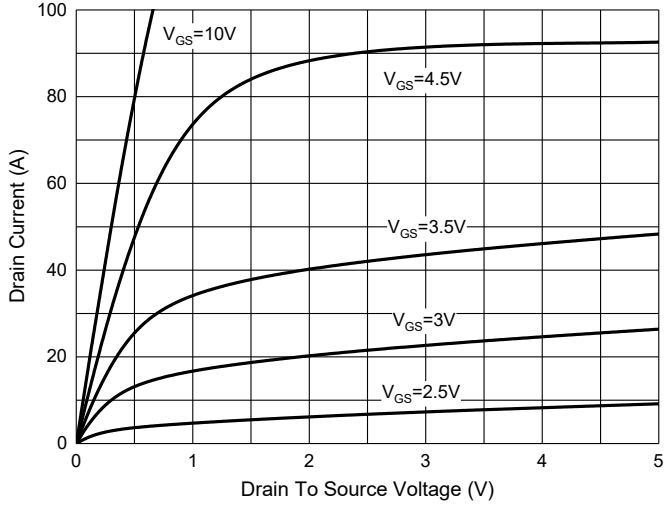


Fig. 2 - Transfer Characteristics

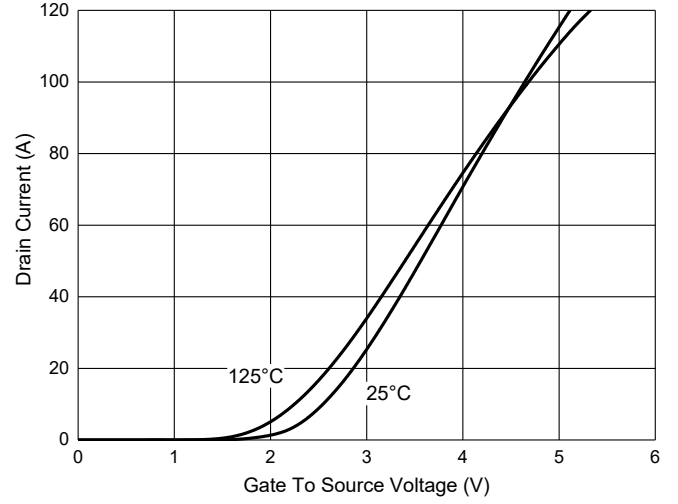


Fig. 3 - $R_{DS(ON)} - I_D$

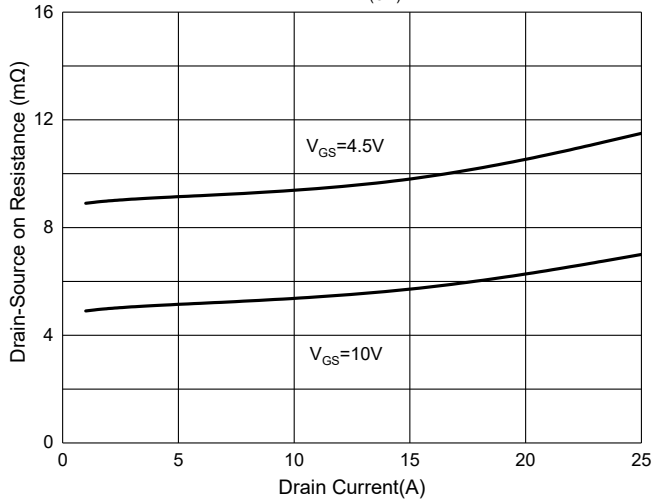


Fig. 4 - Normalized On Resistance Characteristics

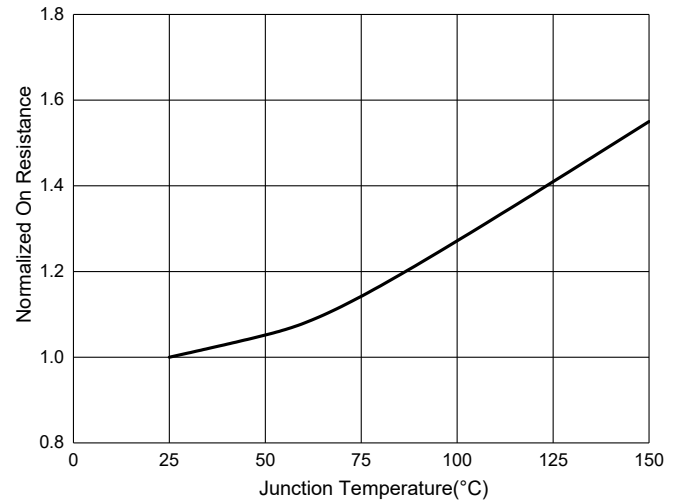


Fig. 5 - Capacitance Characteristics

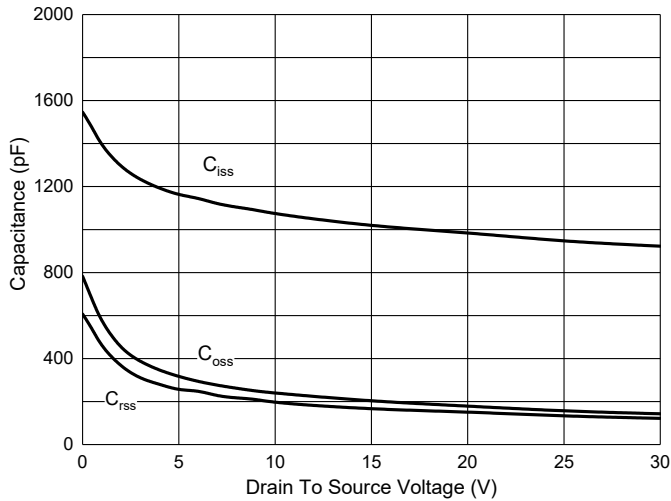
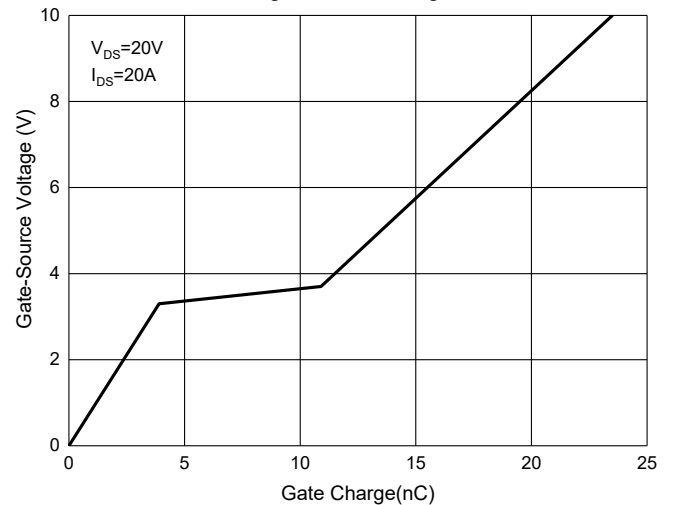


Fig. 6 - Gate Charge



Curve Characteristics

Fig. 7 - Safe Operation Area

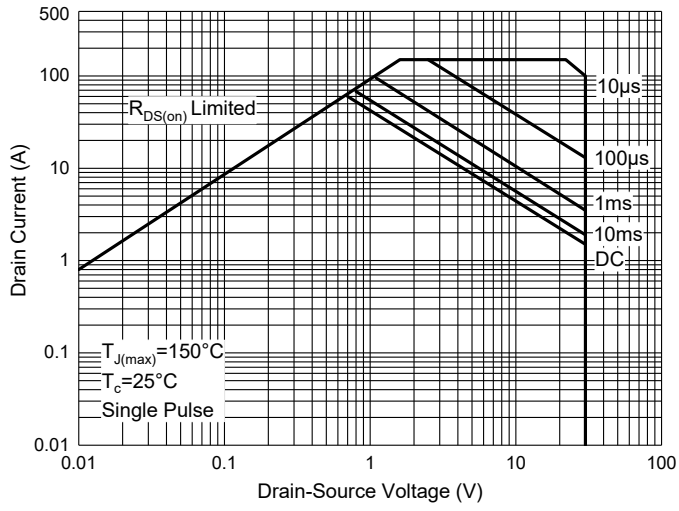
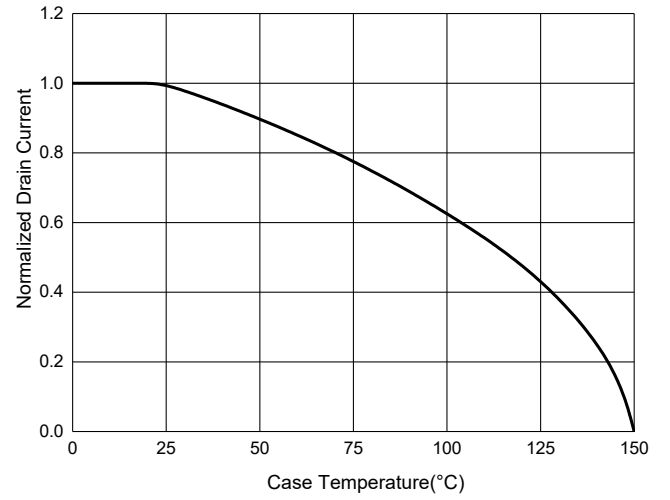


Fig. 8 - Normalized Drain Current Characteristics



Ordering Information

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

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