

Features

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

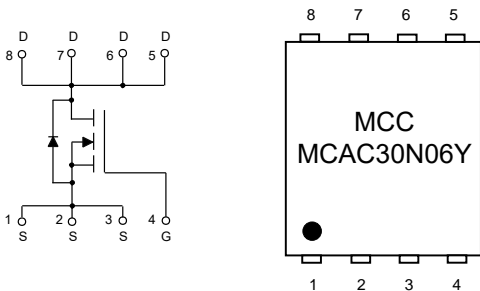
Maximum Ratings

- Operating Junction Temperature Range : -55°C to $+150^{\circ}\text{C}$
- Storage Temperature Range: -55°C to $+150^{\circ}\text{C}$
- Thermal Resistance: 5°C/W Junction to Case

Parameter	Symbol	Rating	Unit
Drain-Source Voltage	V_{DS}	60	V
Gate-Source Voltage	V_{GS}	± 20	V
Continuous Drain Current	I_D	$T_C=25^{\circ}\text{C}$	30 A
		$T_C=100^{\circ}\text{C}$	19 A
Pulsed Drain Current	I_{DM}	130	A
Avalanche Energy, Single Pulse ^(Note 2)	E_{AS}	100	mJ
Total Power Dissipation	P_D	30	W

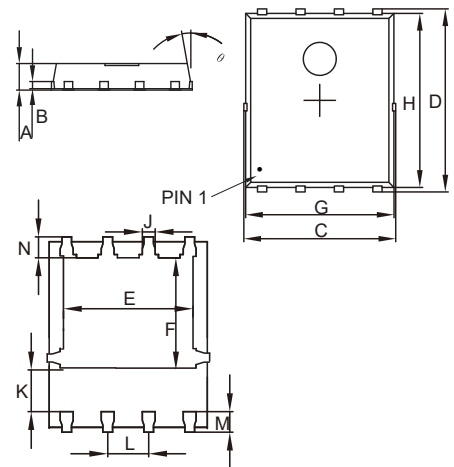
Note: 1. Halogen free "Green" products are defined as those which contain <900ppm bromine, <900ppm chlorine (<1500ppm total Br + Cl) and <1000ppm antimony compounds.
2. $T_j=25^{\circ}\text{C}$, $V_{DD}=40\text{V}$, $V_G=10\text{V}$, $L=0.5\text{mH}$, $R_G=25\Omega$

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 Parameter						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	$V_{GS}=0V, I_D=250\mu A$	60			V
Gate-Threshold Voltage ^(Note 3)	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=250\mu A$	1.0	1.5	2.5	V
Gate-Body Leakage	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
Drain-Source On-Resistance ^(Note 3)	$R_{DS(on)}$	$V_{GS}=10V, I_D=15A$		16	20	m Ω
		$V_{GS}=4.5V, I_D=10A$		17.5	22	
Diode Forward Voltage	V_{SD}	$V_{GS}=0V, I_S=10A$		0.85	1.2	V
Dynamic Parameters^(Note 4)						
Input Capacitance	C_{iss}	$V_{DS}=30V, V_{GS}=0V, f=1MHz$		1552		pF
Output Capacitance	C_{oss}			192		
Reverse Transfer Capacitance	C_{rss}			133		
Switching Parameters^(Note 4)						
Total Gate Charge	Q_g	$V_{GS}=10V, V_{DS}=30V, I_D=15A$		48		nC
Gate-Source Charge	Q_{gs}			7		
Gate-Drain Charge	Q_{gd}			10		
Reverse Recovery Charge	Q_{rr}	$I_F=10A, di/dt=500A/us$		47		ns
Reverse Recovery Time	t_{rr}			39		
Turn-On Delay Time	$t_{d(on)}$	$V_{DD}=30V, V_{GS}=10V, R_L=1\Omega, I_D=2A, R_{GEN}=3\Omega$		11		ns
Turn-On Rise Time	t_r			6		
Turn-Off Delay Time	$t_{d(off)}$			30		
Turn-Off Fall Time	t_f			9		

Note: 3. Pulse Test: Pulse Width $\leq 300\mu s$, Duty Cycle $\leq 2\%$.

4. These Parameters Have No Way to Verify.

Curve Characteristics

Fig. 1 - Typical Output Characteristics

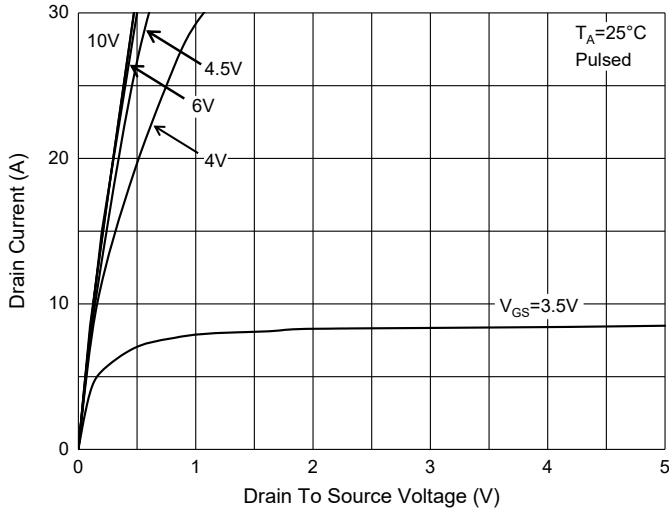


Fig. 2 - Transfer Characteristics

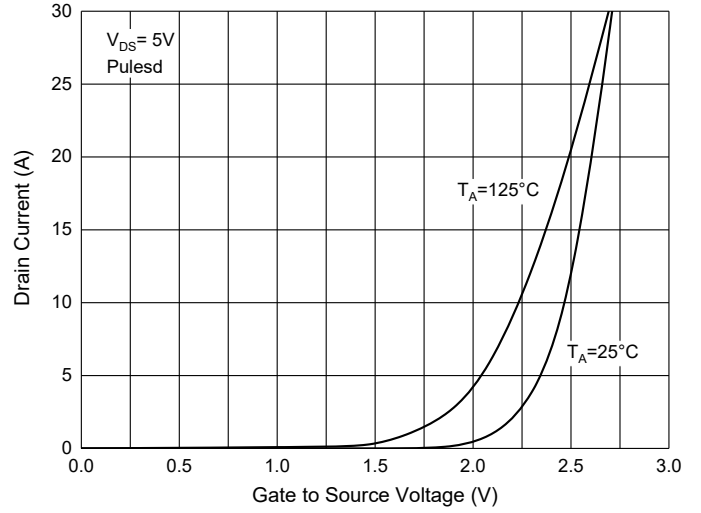


Fig. 3 - Capacitance Characteristics

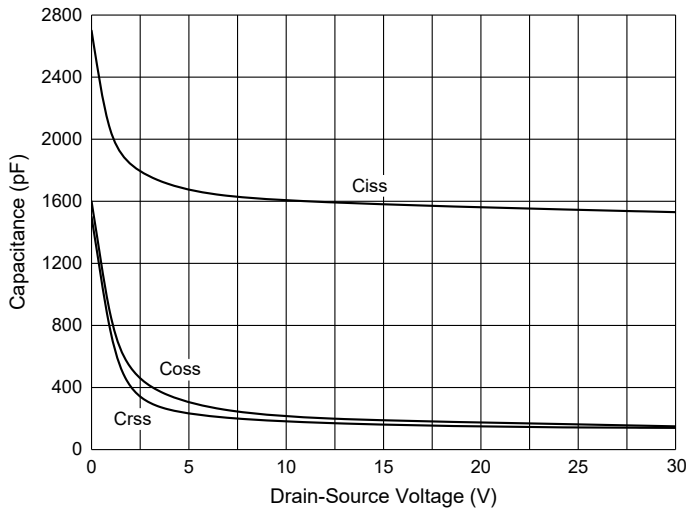


Fig. 4 - Gate Charge

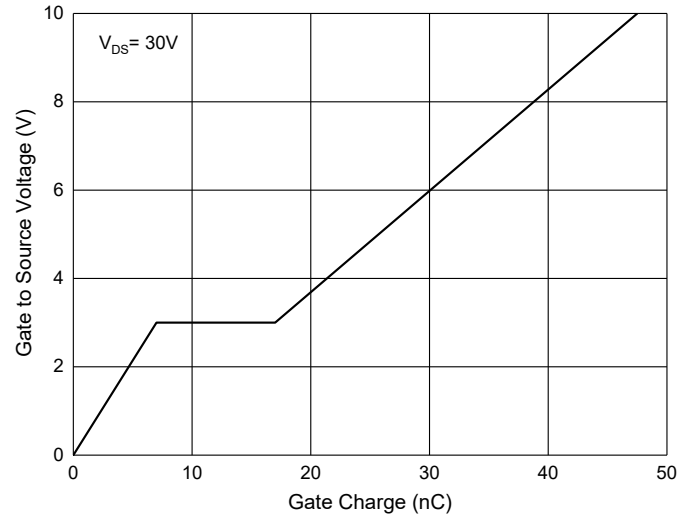


Fig. 5 - R_{DS(ON)} - I_D

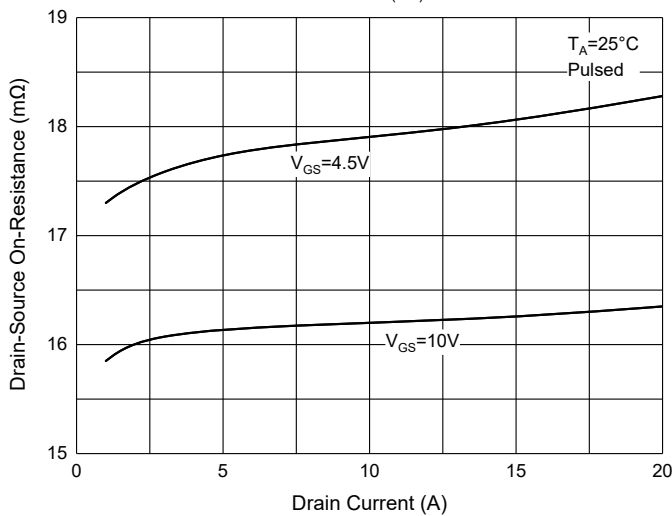
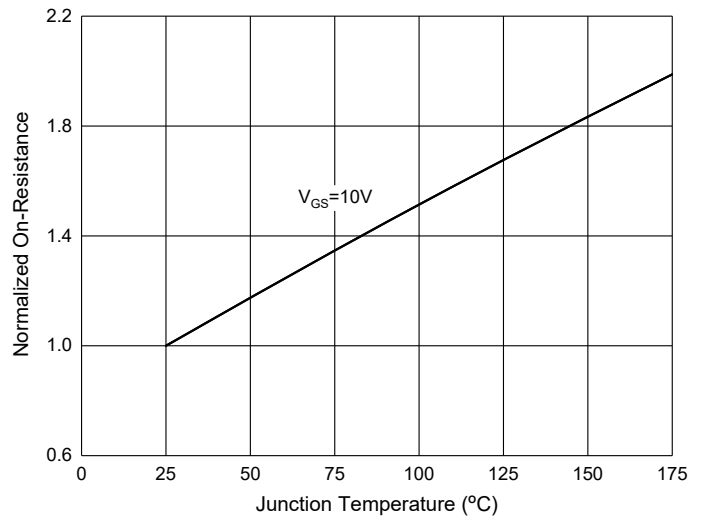
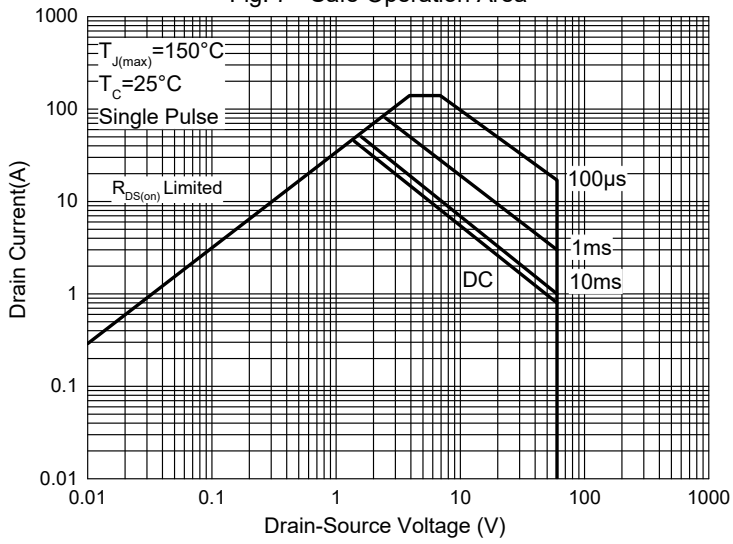


Fig. 6 - Drain-Source on Resistance



Curve Characteristics

Fig. 7 - Safe Operation Area



Ordering Information

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

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