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 Available Upon Request By Adding Suffix "-HF"
- Lead Free Finish/RoHS Compliant ("P" Suffix Designates RoHS Compliant. See Ordering Information)

N-CHANNEL MOSFET

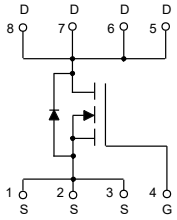
Maximum Ratings

- Operating Junction Temperature Range : -55°C to +150°C
- Storage Temperature Range: -55°C to +150°C
- Thermal Resistance: 5°C/W Junction to Case

Parameter		Symbol	Rating	Unit
Drain-Source Voltage		V_{DS}	60	V
Gate-Source Volltage		V_{GS}	±20	V
Continuous Drain Current	T_C=25°C	I_D	30	A
	T_C=100°C		19	A
Pulsed Drain Current		I_{DM}	130	A
Avalanche Energy, Single Pulse(Note1)		E_{AS}	100	mJ
Total Power Dissipation		P_D	30	W

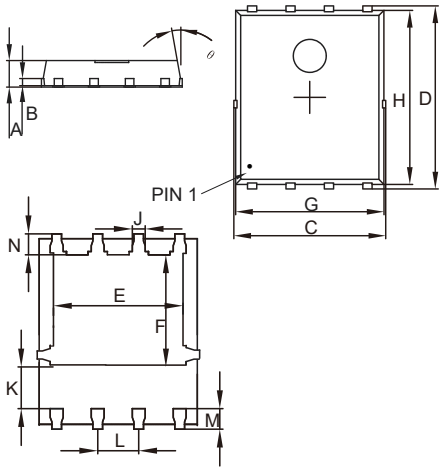
Note: 1. T_j=25°C, V_{DD}=40V, V_G=10V, L=0.5mH, R_g=25Ω

Internal Structure



Marking:MCAC30N06Y

DFN5060



DIMENSIONS					
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 OtherwiseSpecified)

Parameter	Symbol	Test conditions	Min	Typ	Max	Unit
Static Parameter						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	V_{GS}=0V, I_D=250μA	60			V
Gate-Threshold Voltage(Note 2)	$V_{GS(th)}$	V_{DS}=V_{GS}, I_D=250μA	1.0	1.5	2.5	V
Gate-Body Leakage	I_{GSS}	V_{DS}=0V, V_{GS}=±20V			±100	nA
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}=60V, V_{GS}=0V			1	μA
Drain-Source On-Resistance(Note 2)	$R_{DS(on)}$	V_{GS}=10V, I_D=15A		16	20	mΩ
		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(Note3)						
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(Note3)						
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		
Reverse Recovery Time	t_{rr}			39		ns
Turn-On Delay Time	$t_{d(on)}$	V_{DD}=30V,V_{GS}=10V, R_L=1Ω, I_D=2A, R_{GEN}=3Ω		11		
Turn-On Rise Time	tr			6		
Turn-Off Delay Time	$t_{d(off)}$			30		
Turn-Off Fall Time	t_f			9		

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

3. These Parameters Have No Way to Verify.

Curve Characteristics

Fig. 1 - Typical Output Characteristics

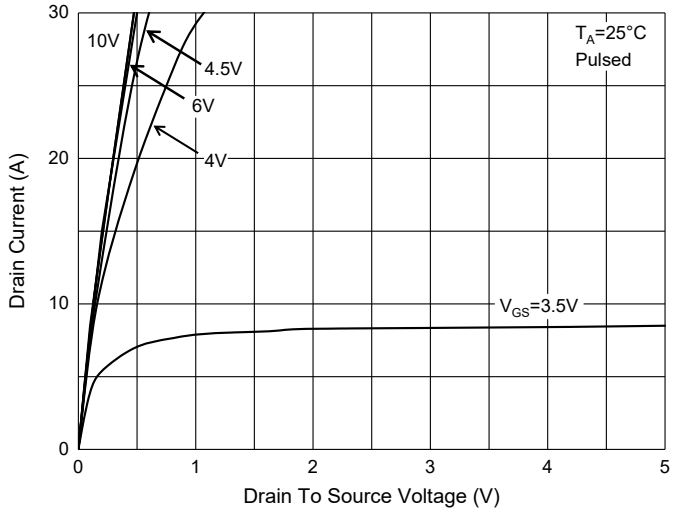


Fig. 2 - Transfer Characteristics

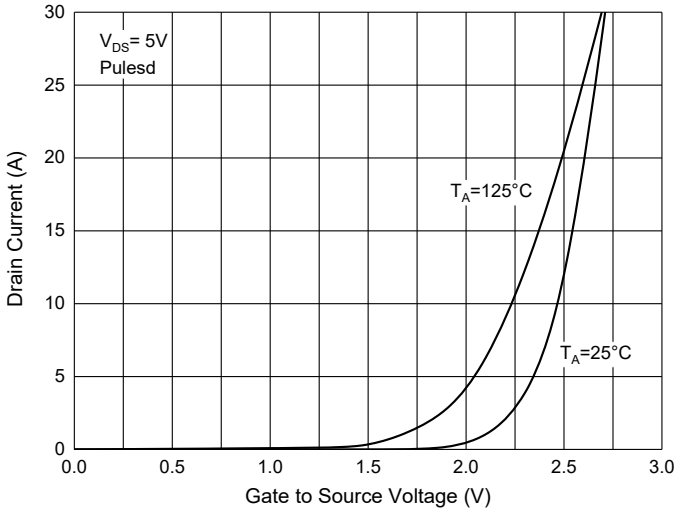


Fig. 3 - Capacitance Characteristics

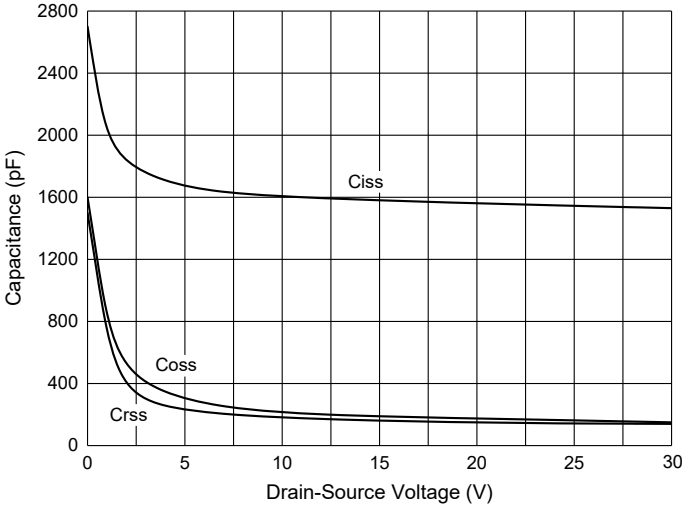


Fig. 4 - Gate Charge

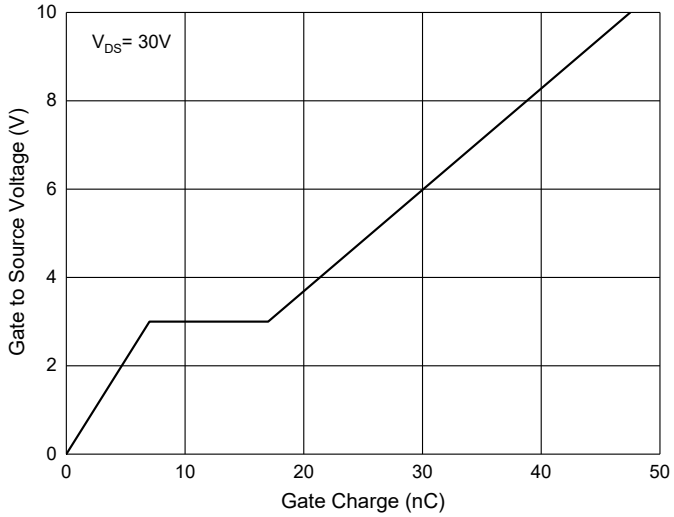


Fig. 5 - $R_{DS(ON)}$—I_D

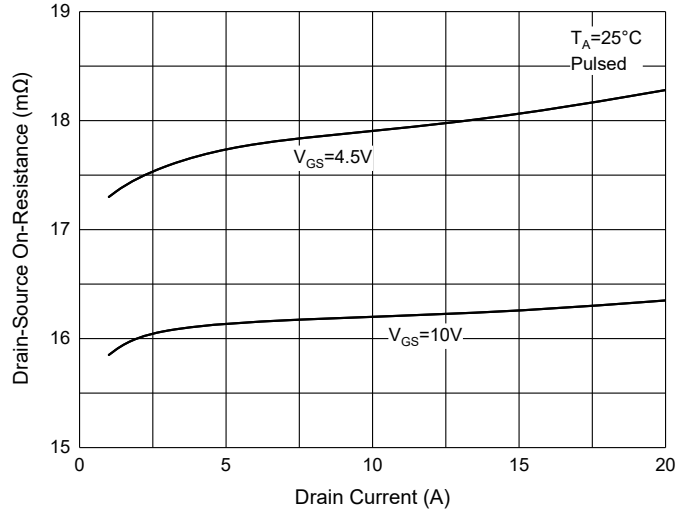
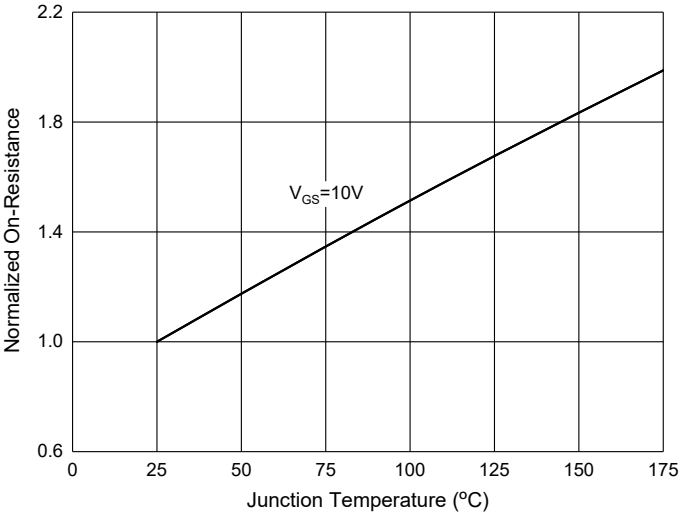


Fig. 6 - Drain-Source on Resistance



Ordering Information

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

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