

MCAC75N06YB-TP Datasheet

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DiGi Electronics Part Number	MCAC75N06YB-TP-DG
Manufacturer	Micro Commercial Co
Manufacturer Product Number	MCAC75N06YB-TP
Description	MOSFET N-CH DFN5060
Detailed Description	N-Channel 60 V 75A 35W Surface Mount DFN5060

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Purchase and inquiry

Manufacturer Product Number:

MCAC75N06YB-TP

Series:

-

FET Type:

N-Channel

Drain to Source Voltage (Vdss):

60 V

Drive Voltage (Max Rds On, Min Rds On):

10V

Vgs(th) (Max) @ Id:

4V @ 250μA

Vgs (Max):

±20V

FET Feature:

-

Operating Temperature:

-55°C ~ 150°C (TJ)

Supplier Device Package:

DFN5060

Base Product Number:

MCAC75N06

Manufacturer:

Micro Commercial Co

Product Status:

Obsolete

Technology:

MOSFET (Metal Oxide)

Current - Continuous Drain (Id) @ 25°C:

75A

Rds On (Max) @ Id, Vgs:

6mOhm @ 20A, 10V

Gate Charge (Qg) (Max) @ Vgs:

34 nC @ 10 V

Input Capacitance (Ciss) (Max) @ Vds:

2028 pF @ 30 V

Power Dissipation (Max):

35W

Mounting Type:

Surface Mount

Package / Case:

8-PowerTDFN

Environmental & Export classification

RoHS Status:

ROHS3 Compliant

Moisture Sensitivity Level (MSL):

1 (Unlimited)

Features

- Split Gate Trench MOSFET Technology
- Low Thermal Resistance
- Halogen Free. "Green" Device (Note 1)
- Epoxy Meets UL 94 V-0 Flammability Rating
- Lead Free Finish/RoHS Compliant ("P" Suffix Designates RoHS Compliant. See Ordering Information)

Maximum Ratings

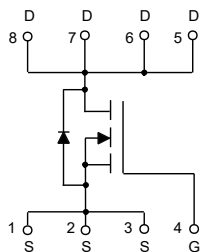
- Operating Junction Temperature Range : -55°C to +150°C
- Storage Temperature Range: -55°C to +150°C
- Thermal Resistance: 3.5°C/W Junction to Case⁽²⁾

Parameter	Symbol	Rating	Unit
Drain-Source Voltage	V_{DS}	60	V
Gate-Source Voltage	V_{GS}	±20	V
Continuous Drain Current	I_D	75	A
Pulsed Drain Current ⁽³⁾	I_{DM}	240	A
Total Power Dissipation	P_D	35	W
Single Pulsed Avalanche Energy ⁽⁴⁾	E_{AS}	180	mJ

Note:

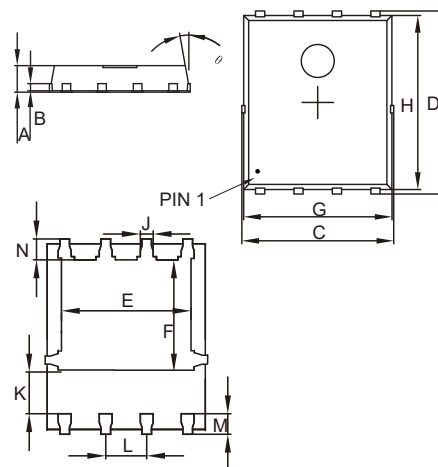
1. Halogen free "Green" products are defined as those which contain <900ppm bromine, <900ppm chlorine (<1500ppm total Br + Cl) and <1000ppm antimony compounds.
2. Surface Mounted on 1 in² pad area, t ≤ 10 sec.
3. Pulse Test: Pulse Width ≤ 300us, Duty cycle ≤ 2%.
4. T_J=25°C, V_{DD}=50V, L=1.0mH.

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 =250μA	60			V
Gate-Source Leakage Current	I _{GSS}	V _{DS} =0V, V _{GS} =±20V			±100	nA
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} =48V, V _{GS} =0V			1	μA
Gate-Threshold Voltage	V _{GS(th)}	V _{DS} =V _{GS} , I _D =250μA	2		4	V
Drain-Source On-Resistance	R _{DS(on)}	V _{GS} =10V, I _D =20A		5	6	mΩ
Diode Characteristics						
Continuous Body Diode Current	I _S				75	A
Diode Forward Voltage	V _{SD}	V _{GS} =0V, I _S =20A			1.3	V
Reverse Recovery Time	t _{rr}	I _S =20A, di/dt=100A/μs		56		ns
Reverse Recovery Charge	Q _{rr}			45		nC
Dynamic Characteristics						
Input Capacitance	C _{iss}	V _{DS} =30V, V _{GS} =0V, f=1MHz		2028		pF
Output Capacitance	C _{oss}			756		
Reverse Transfer Capacitance	C _{rss}			41		
Total Gate Charge	Q _g	V _{DS} =30V, V _{GS} =10V, I _D =20A		34		nC
Gate-Source Charge	Q _{gs}			11		
Gate-Drain Charge	Q _{gd}			8		
Turn-On Delay Time	t _{d(on)}	V _{DS} =30V, V _{GS} =10V, R _G =4.5Ω, R _L =1.5Ω, I _D =20A		12		ns
Turn-On Rise Time	t _r			32		
Turn-Off Delay Time	t _{d(off)}			23		
Turn-Off Fall Time	t _f			15		

Curve Characteristics

Fig. 1 - Typical Output Characteristics

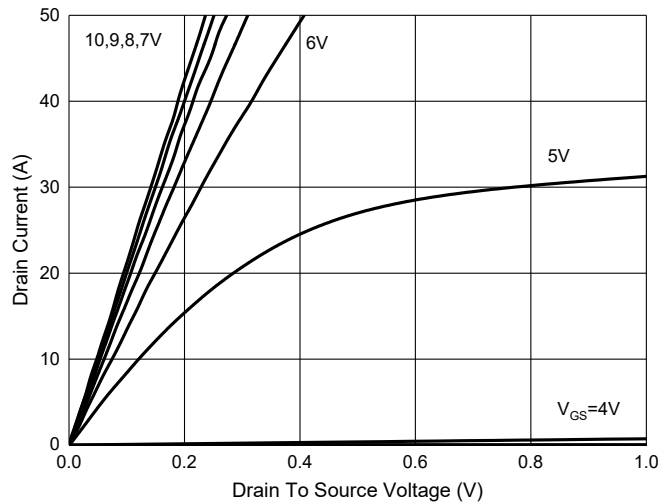
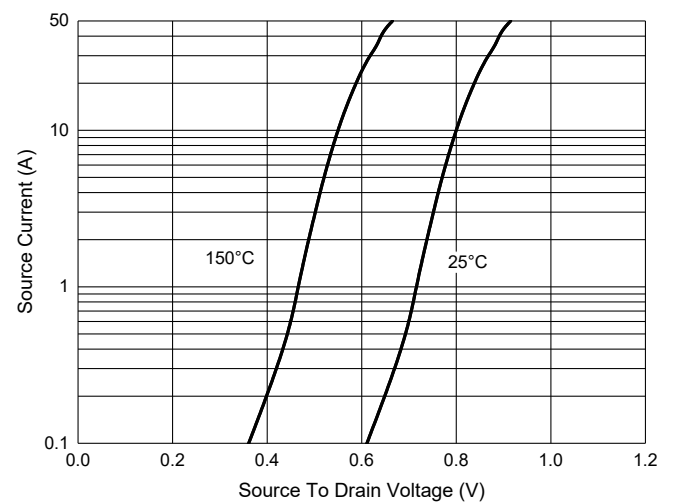
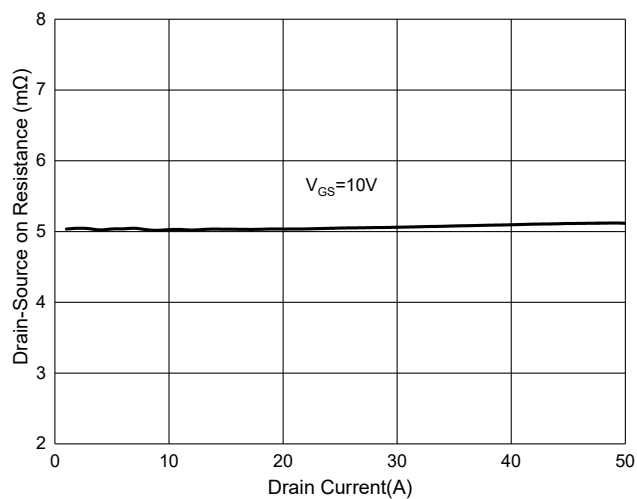
Fig. 2 - I_S — V_{SD} Fig. 3 - $R_{DS(ON)}$ — I_D 

Fig. 4 - Normalized On Resistance Characteristics

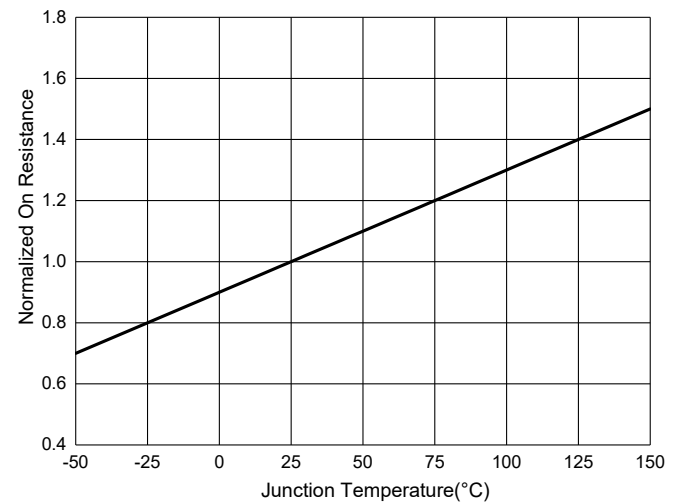


Fig. 5 - Capacitance Characteristics

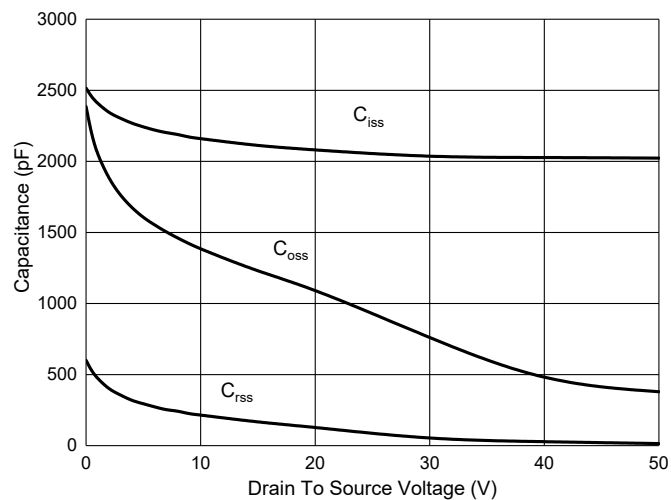
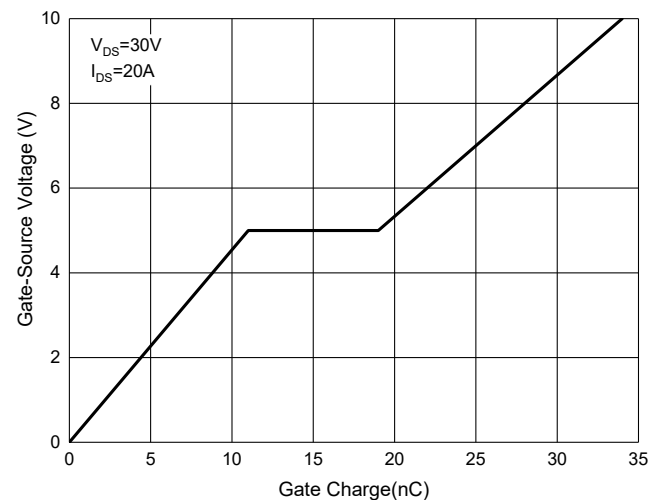
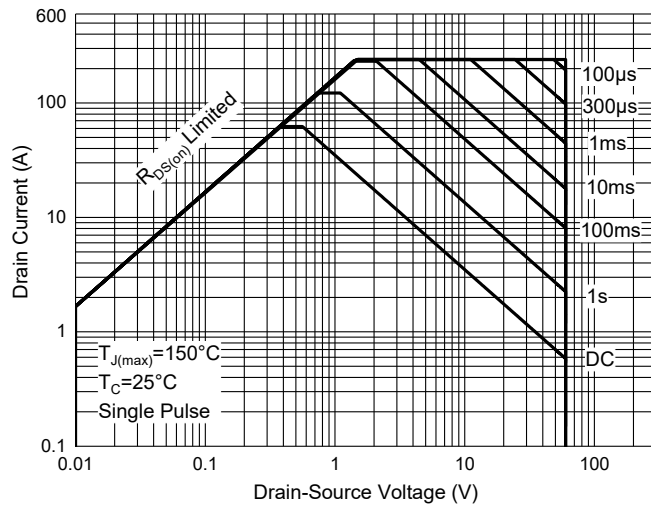


Fig. 6 - Gate Charge



Curve Characteristics

Fig. 7 - Safe Operation Area



Ordering Information

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

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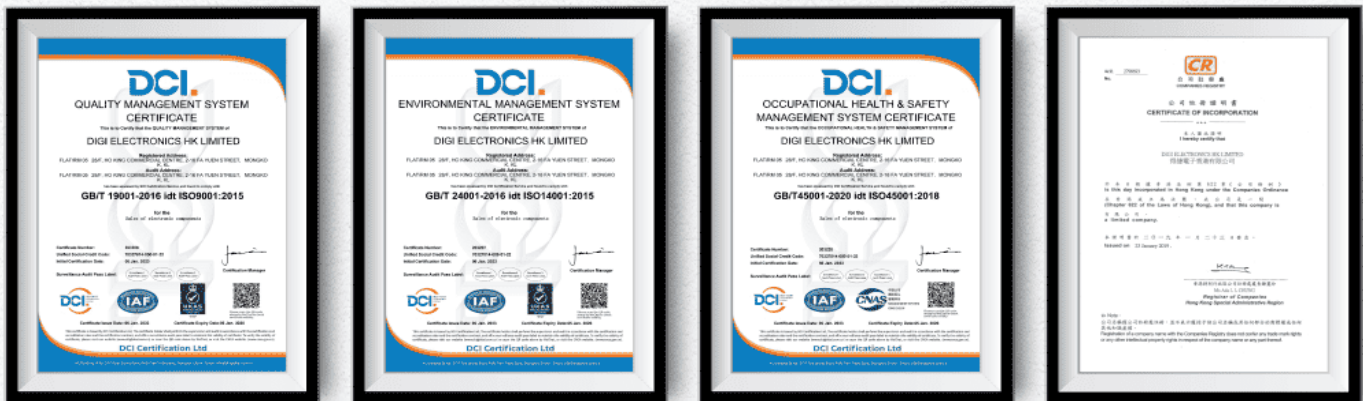
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