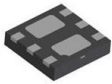


MCM3400A-TP Datasheet

www.digi-electronics.com



DiGi Electronics Part Number

MCM3400A-TP-DG

Manufacturer

[Micro Commercial Co](#)

Manufacturer Product Number

MCM3400A-TP

Description

MOSFET 2N-CH 30V 5A 6DFN

Detailed Description

Mosfet Array 30V 5A 1.4W Surface Mount DFN2020-6L

<https://www.DiGi-Electronics.com>



Tel: +00 852-30501935

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Purchase and inquiry

Manufacturer Product Number:

MCM3400A-TP

Series:

-

Technology:

MOSFET (Metal Oxide)

FET Feature:

-

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

5A

Vgs(th) (Max) @ Id:

1.5V @ 250µA

Input Capacitance (Ciss) (Max) @ Vds:

1155pF @ 15V

Operating Temperature:

-55°C ~ 150°C (TJ)

Package / Case:

6-VDFN Exposed Pad

Base Product Number:

MCM3400

Manufacturer:

Micro Commercial Co

Product Status:

Active

Configuration:

2 N-Channel

Drain to Source Voltage (Vdss):

30V

Rds On (Max) @ Id, Vgs:

32mOhm @ 5.8A, 10V

Gate Charge (Qg) (Max) @ Vgs:

-

Power - Max:

1.4W

Mounting Type:

Surface Mount

Supplier Device Package:

DFN2020-6L

Environmental & Export classification

RoHS Status:

ROHS3 Compliant

REACH Status:

REACH Unaffected

HTSUS:

8541.29.0095

Moisture Sensitivity Level (MSL):

1 (Unlimited)

ECCN:

EAR99

Features

- Trench LV MOSFET Technology
- High Dense Cell Design for Extremely Low $R_{DS(ON)}$
- Moisture Sensitivity Level 1
- 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

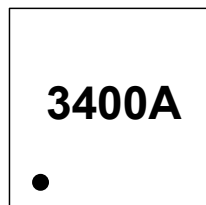
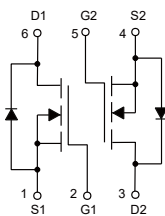
- Operating Junction Temperature Range : -55°C to $+150^{\circ}\text{C}$
- Storage Temperature Range: -55°C to $+150^{\circ}\text{C}$
- Maximum Thermal Resistance: 89°C/W Junction to Ambient^(Note 2)

Parameter	Symbol	Rating	Unit
Drain-Source Voltage	V_{DS}	30	V
Gate-Source Voltage	V_{GS}	± 12	V
Continuous Drain Current	I_D	$T_A=25^{\circ}\text{C}$	5
		$T_A=70^{\circ}\text{C}$	4
Pulsed Drain Current ^(Note 3)	I_{DM}	20	A
Total Power Dissipation ^(Note 4)	P_D	1.4	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. The value of R_{thJA} is measured with the device mounted on 1 in2 FR-4 board with 2oz. copper, in a still air environment with $T_A=25^{\circ}\text{C}$
3. Repetitive rating; pulse width limited by max. junction temperature.
4. P_D is based on max. junction temperature, using junction-ambient thermal resistance.

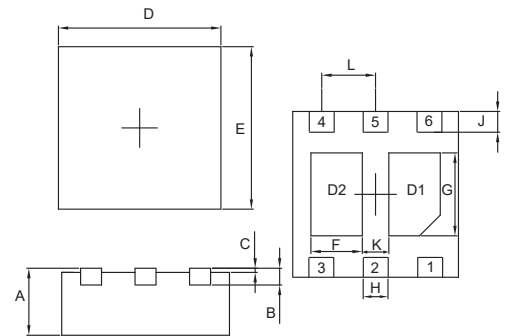
Internal Structure and Marking Code



Pin1

N-Channel MOSFET

DFN2020-6L



DIM	DIMENSIONS				NOTE
	INCHES		MM		
	MIN	MAX	MIN	MAX	
A	0.030	0.034	0.750	0.850	
B	0.008		0.200		TYP.
C	0.000	0.002	0.000	0.050	
D	0.077	0.081	1.950	2.050	
E	0.077	0.081	1.950	2.050	
F	0.017	0.027	0.440	0.690	
G	0.033	0.043	0.840	1.090	
H	0.010	0.014	0.250	0.350	
J	0.007	0.015	0.175	0.375	
K	0.010	0.014	0.250	0.350	
L	0.026		0.650		TYP.

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}	$V_{DS}=0V, V_{GS}=\pm 12V$			± 100	nA
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS}=24V, V_{GS}=0V$			1	μA
Gate-Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=250\mu A$	0.7	0.9	1.5	V
Drain-Source On-Resistance	$R_{DS(on)}$	$V_{GS}=10V, I_D=5.8A$		24	32	m Ω
		$V_{GS}=4.5V, I_D=5A$		27	38	
		$V_{GS}=2.5V, I_D=4A$		32	45	
Gate Resistance	R_G	f=1MHz, Open drain		1.7		Ω
Diode Characteristics						
Continuous Body Diode Current	I_S				5	A
Diode Forward Voltage	V_{SD}	$V_{GS}=0V, I_S=1A$			1	V
Reverse Recovery Time	t_{rr}	$I_F=5A, di_F/dt=280A/\mu s$		10		ns
Reverse Recovery Charge	Q_{rr}			11		nC
Dynamic Characteristics						
Input Capacitance	C_{iss}	$V_{DS}=15V, V_{GS}=0V, f=1MHz$		645		pF
Output Capacitance	C_{oss}			58		
Reverse Transfer Capacitance	C_{rss}			50		
Total Gate Charge	Q_g	$V_{DS}=15V, V_{GS}=10V, I_D=5A$		16		nC
Gate-Source Charge	Q_{gs}			1.5		
Gate-Drain Charge	Q_{gd}			2.3		
Turn-On Delay Time	$t_{d(on)}$	$V_{DD}=20V, V_{GS}=10V, R_G=2.2\Omega, I_D=5A$		7		ns
Turn-On Rise Time	t_r			28		
Turn-Off Delay Time	$t_{d(off)}$			18		
Turn-Off Fall Time	t_f			2		

Curve Characteristics

Fig. 1 Typical Output Characteristics

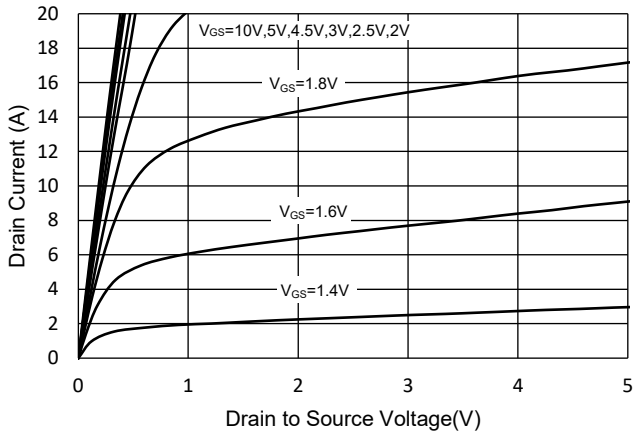


Fig.2 Transfer Characteristic

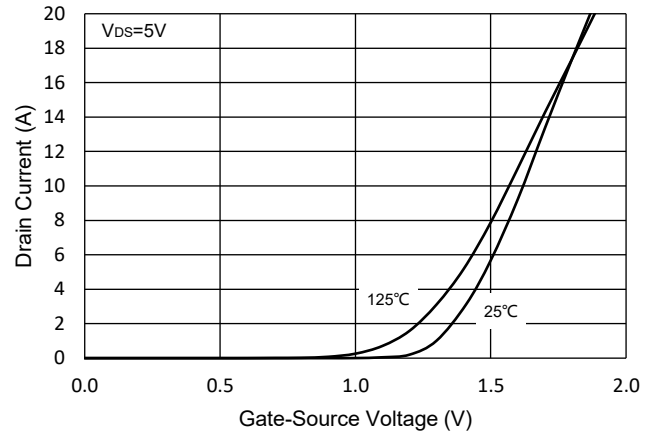


Fig.3 Rds(on)-Vgs

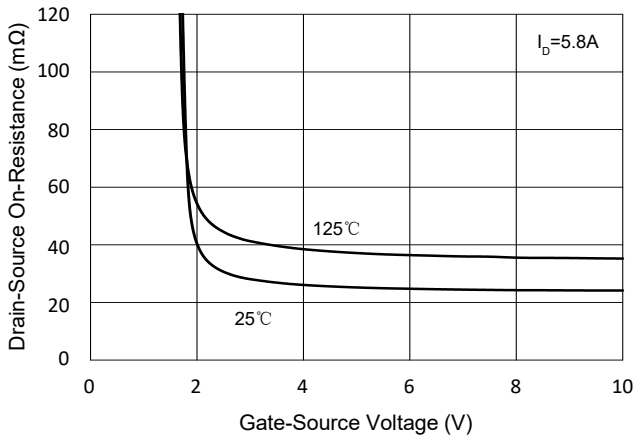


Fig.4 Rds(on)-Id

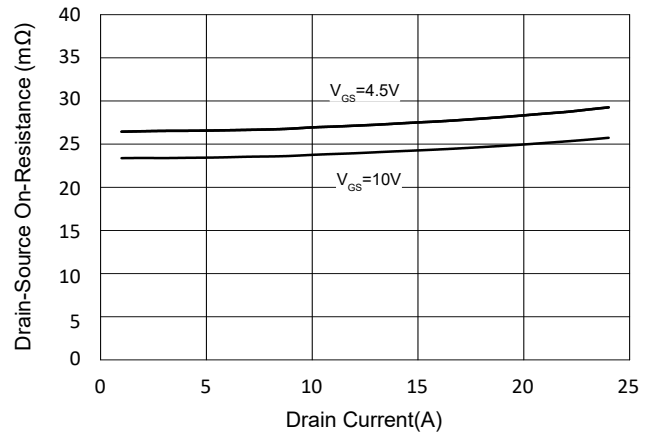


Fig.5 Capacitance Characteristics

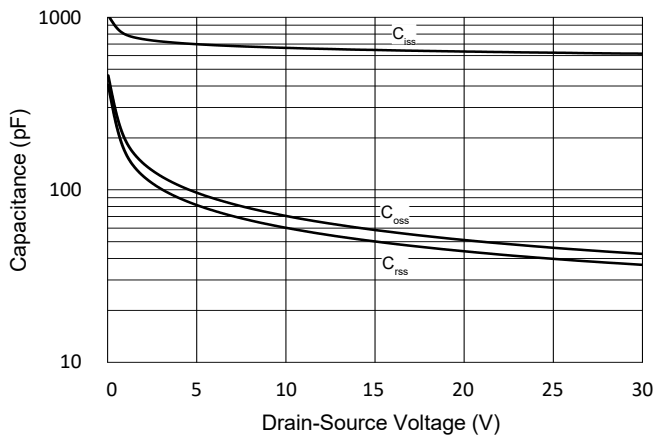
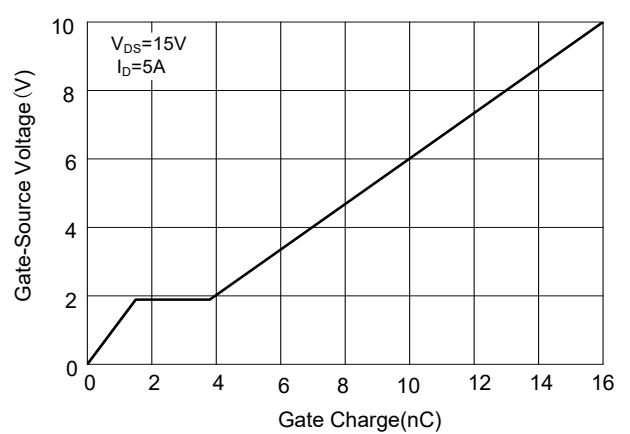


Fig.6 Gate Charge



Curve Characteristics

Fig.7 Normalized Threshold Voltage

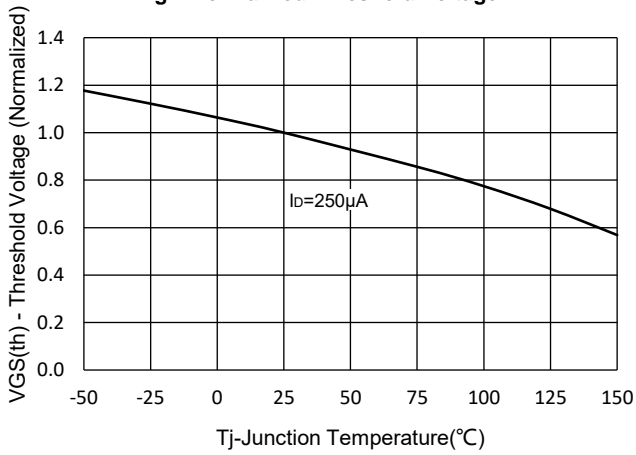


Fig.8 Normalized On Resistance Characteristics

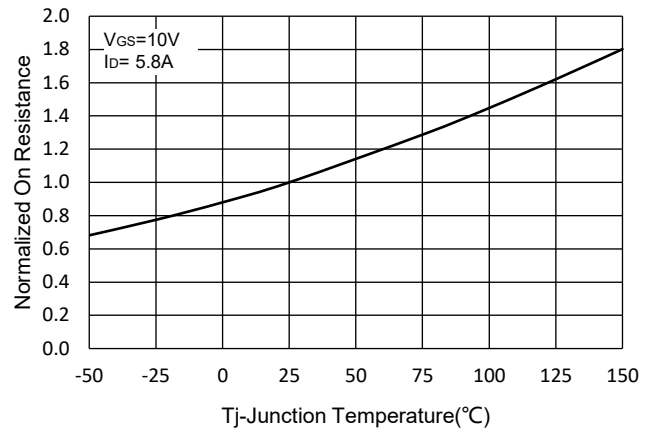


Fig.9 IS-VSD

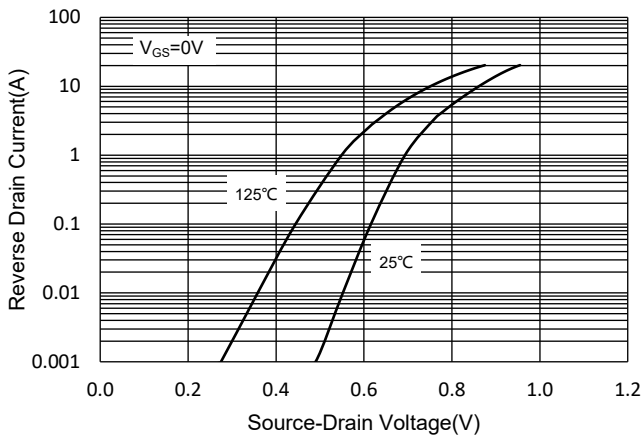


Fig.10 Drain Current

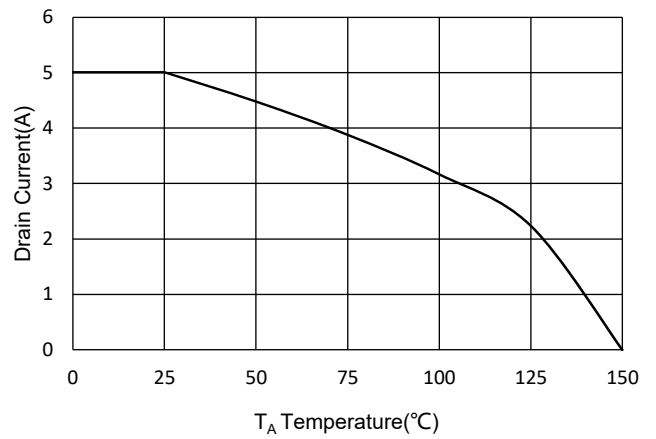
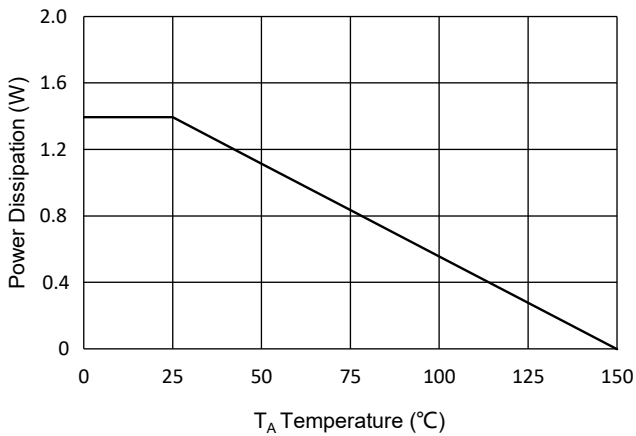


Fig.11 Power Dissipation



Curve Characteristics

Fig.12 Safe Operation Area

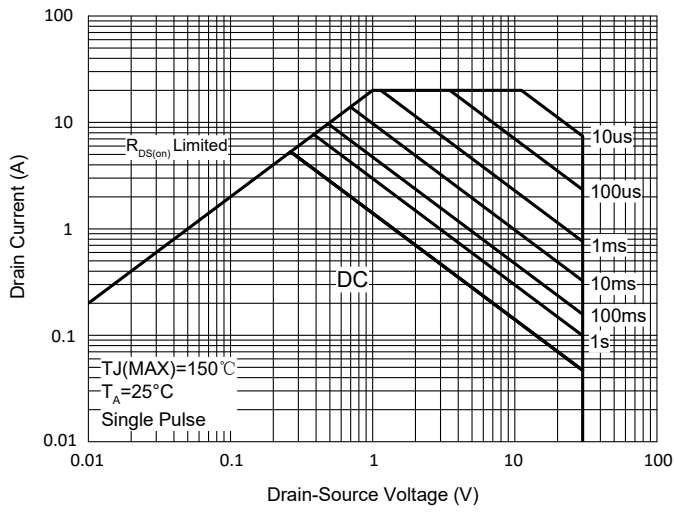
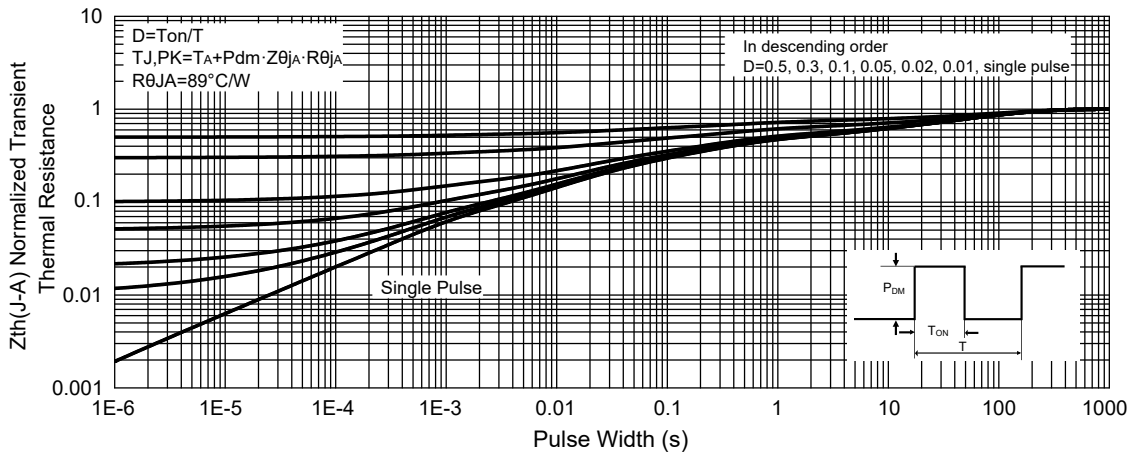


Fig.13 Normalized Transient Thermal Impedance



Ordering Information

Device	Packing
Part Number-TP	Tape&Reel:3Kpcs/Reel

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