MCU60N04-TP Datasheet

DiGi Electronics Part Number	MCU60N04-TP-DG
Manufacturer	Micro Commercial Co
Manufacturer Product Number	MCU60N04-TP
Description	MOSFET N-CH 40V 60A DPAK
Detailed Description	N-Channel 40 V 60A (Ta) 1.25W Surface Mount DPAK

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RFQ Email: Info@DiGi-Electronics.com

Purchase and inquiry

Manufacturer Product Number:	Manufacturer:
MCU60N04-TP	Micro Commercial Co
Series:	Product Status:
-	Obsolete
FET Type:	Technology:
N-Channel	MOSFET (Metal Oxide)
Drain to Source Voltage (Vdss):	Current - Continuous Drain (Id) @ 25°C:
40 V	60A (Ta)
Drive Voltage (Max Rds On, Min Rds On):	Rds On (Max) @ Id, Vgs:
4.5V, 10V	13mOhm @ 20A, 10V
Vgs(th) (Max) @ Id:	Gate Charge (Qg) (Max) @ Vgs:
2.5V @ 250µA	29 nC @ 10 V
Vgs (Max):	Input Capacitance (Ciss) (Max) @ Vds:
±20V	1800 pF @ 20 V
FET Feature:	Power Dissipation (Max):
-	1.25W
Operating Temperature:	Mounting Type:
-55°C ~ 150°C (TJ)	Surface Mount
Supplier Device Package:	Package / Case:
DPAK	TO-252-3, DPAK (2 Leads + Tab), SC-63
Base Product Number:	
MCU60	

Environmental & Export classification

RoHS Status:	Moisture Sensitivity Level (MSL):
ROHS3 Compliant	1 (Unlimited)
ECCN:	HTSUS:
EAR99	8541.29.0095

Micro Commercial Components

MCU60N04

Features

- High Density Cell Design for Ultra Low R_{DSon}
- Fully Characterized Avalanche Voltage and Current
- Good Stability and Uniformity With High EAS
- 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)

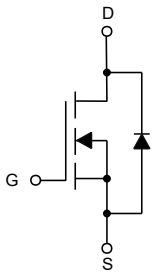
N-CHANNEL MOSFET

Maximum Ratings

- Operating Junction Temperature Range: -55°C to +150°C
- Storage Temperature Range: -55°C to +150°C
- Thermal Resistance: 100°C/W Junction to Ambient

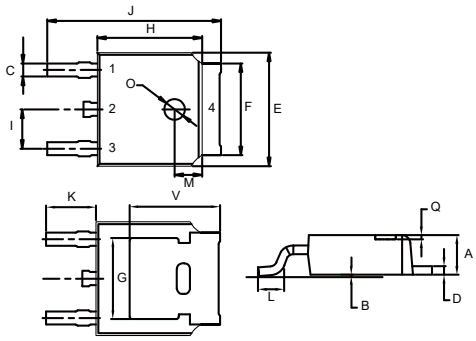
Parameter	Symbol	Rating	Unit
Drain -Source Voltage	V_{DS}	40	V
Gate -Source Volltage	V_{GS}	±20	V
Drain Current-Continuous	I_D	60	A
Drain Current-Pulsed	I_{DM}	240	A
Power Dissipation	P_D	1.25	W
Single Pulsed Avalanche Energy(Note1)	E_{AS}	400	mJ

Internal Structure



1.GATE
2.DRAIN
3.SOURCE

DPAK



DIMENSIONS					
DIM	INCHES		MM		NOTE
	MIN	MAX	MIN	MAX	
A	0.087	0.094	2.20	2.40	
B	0.000	0.005	0.00	0.13	
C	0.026	0.034	0.66	0.86	
D	0.018	0.023	0.46	0.58	
E	0.256	0.264	6.50	6.70	
F	0.201	0.215	5.10	5.46	
G	0.190		4.83		TYP.
H	0.236	0.244	6.00	6.20	
I	0.086	0.094	2.18	2.39	
J	0.386	0.409	9.80	10.40	
K	0.114		2.90		TYP.
L	0.055	0.067	1.40	1.70	
M	0.063		1.60		TYP.
O	0.043	0.051	1.10	1.30	
Q	0.000	0.012	0.00	0.30	
V	0.211		5.35		TYP.

ELECTRICAL CHARACTERISTICS (Ta=25℃ 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	40			V
Gate-Threshold Voltage(Note2)	$V_{GS(th)}$	V_{DS}=V_{GS}, I_D=250μA	1.2	1.5	2.5	V
Gate-Body Leakage Current	I_{GSS}	V_{GS} =± 20V, V_{DS} =0V			±100	nA
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS} =40V, V_{GS} =0V			1	μA
Drain-Source On-Resistance(Note2)	$R_{DS(on)}$	V_{GS}=10V, I_D=20A		8	13	mΩ
		V_{GS}=4.5V, I_D=20A		10.5	20	
Forward Transconductance(Note2)	g_{FS}	V_{DS}=25V, I_D=20A	24			S
Dynamic Characteristics(Note3)						
Input Capacitance	C_{iss}	V_{DS}=20V,V_{GS}=0V, f=1MHz		1800		pF
Output Capacitance	C_{oss}			280		
Reverse Transfer Capacitance	C_{rss}			190		
Switching Characteristics(Note3)						
Total Gate Charge	Q_g	V_{DS}=20V,V_{GS}=10V,I_D=20A		29		Nc
Gate-Source Charge	Q_{gs}			4.5		
Gate-Drain Charge	Q_{gd}			6.4		
Turn-on Delay Time	$t_{d(on)}$	V_{DD}=20V,V_{GS}=10V,R_G=3Ω, I_D=2A, R_L=1Ω,		6.4		ns
Turn-on Rise Time	t_r			17.2		
Turn-off Delay Time	$t_{d(off)}$			29.6		
Turn-off Fall Time	t_f			16.8		
Drain-Source Diode Characteristics						
Drain-Source Diode Forward Voltage(Note 2)	V_{SD}	V_{GS}=0V,I_S=20A			1.2	V
Continuous Drain-Source Diode Forward Current	I_S				60	A
Pulsed Drain-Source Diode Forward Current	I_{SM}				240	A

Notes:

1. E_{AS} Condition: V_{DD}=20V,L=0.5mH, R_G=25Ω, Starting T_J = 25°C
2. Pulse Test : Pulse Width≤300μs, duty cycle ≤2%.
3. Guaranteed by Design, Not Subject to Production.

Curve Characteristics

Fig. 1 - Output Characteristics

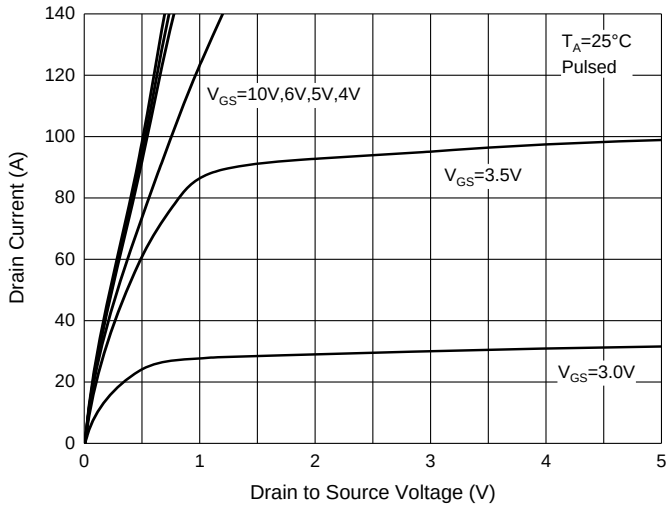


Fig. 2 - Transfer Characteristics

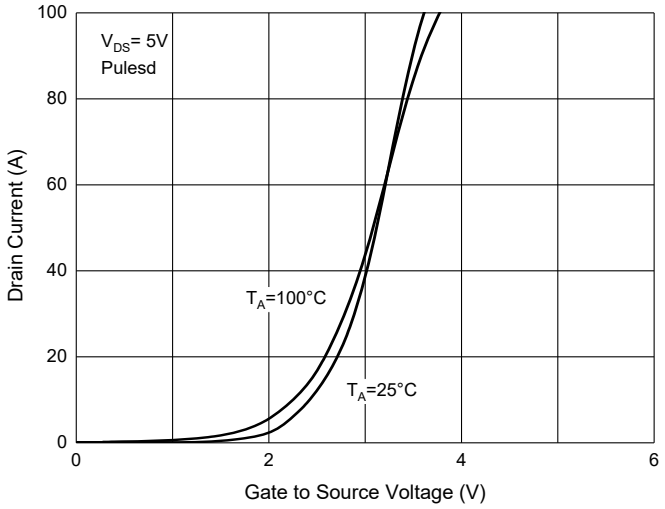


Fig. 3 - $R_{DS(ON)}$—I_D

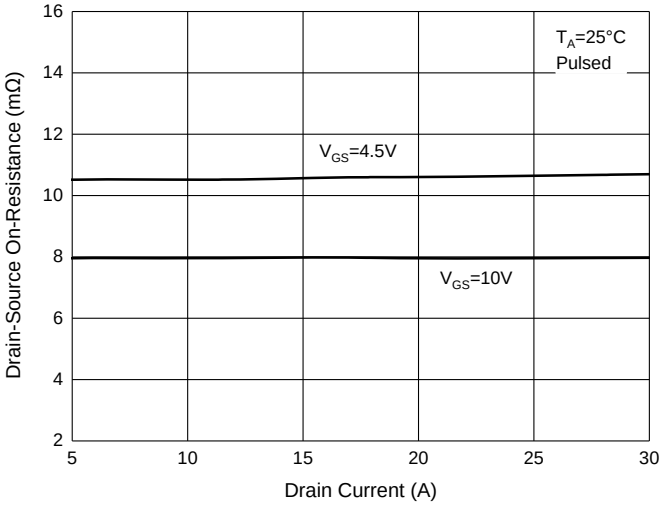


Fig. 4 - $R_{DS(ON)}$—V_{GS}

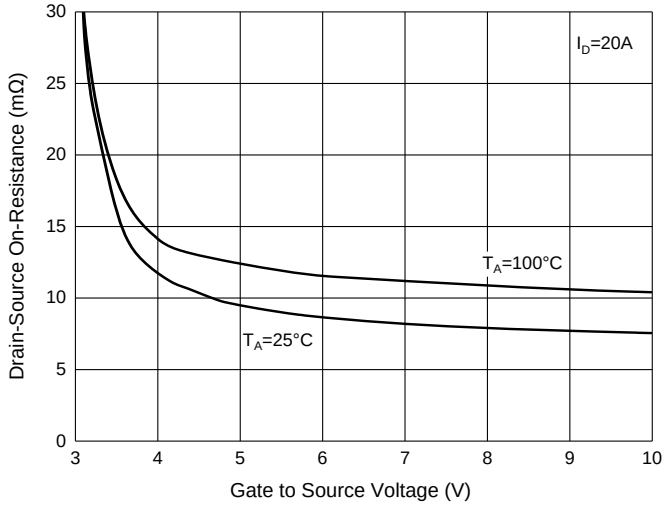


Fig. 5 - I_S—V_{SD}

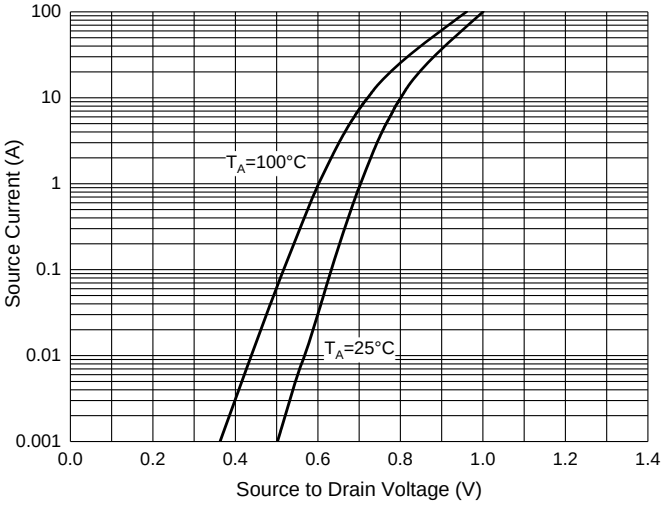
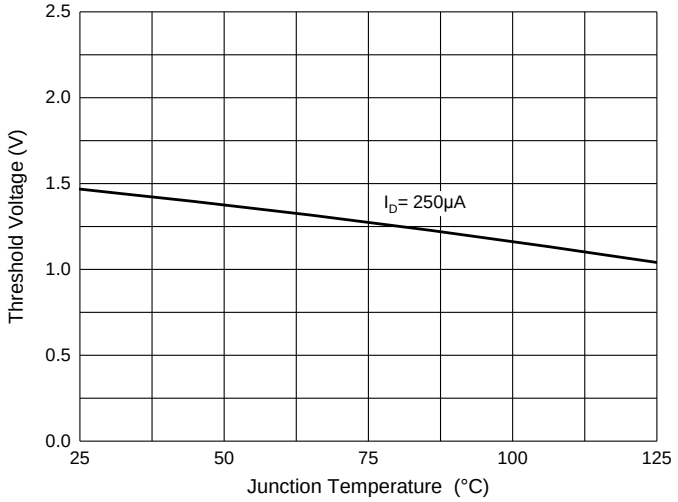


Fig. 6 - Threshold Voltage



Ordering Information

Device	Packing
Part Number-TP	Tape&Reel:2.5Kpcs/Reel

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

OUR CERTIFICATE

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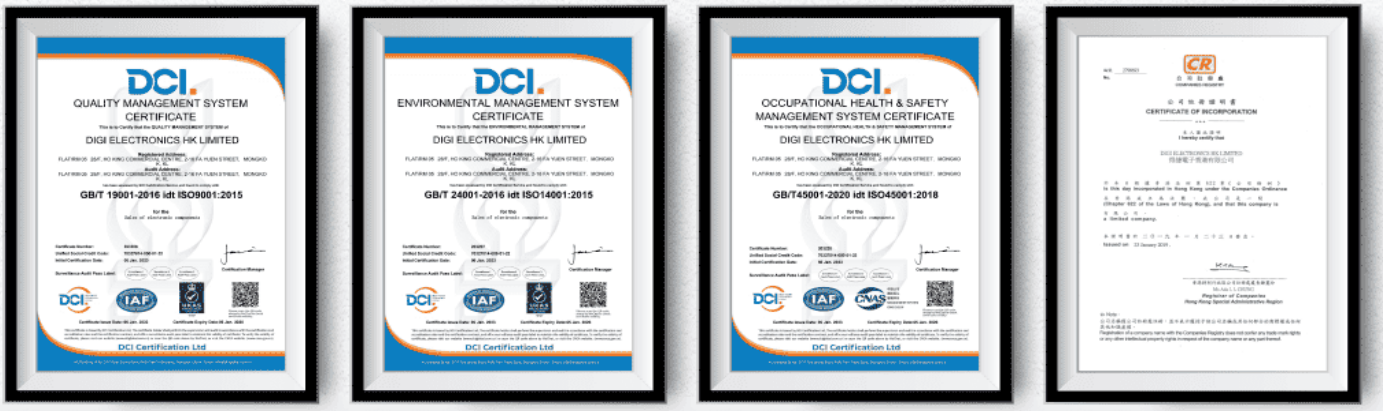

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