MCAC10H03A-TP Datasheet

DiGi Electronics Part Number	MCAC10H03A-TP-DG
Manufacturer	Micro Commercial Co
Manufacturer Product Number	MCAC10H03A-TP
Description	N-CHANNEL MOSFET
Detailed Description	N-Channel 30 V 100A (Tc) 49W Surface Mount DFN5060

Tel: +00 852-30501935

RFQ Email: Info@DiGi-Electronics.com

Purchase and inquiry

Manufacturer Product Number:	Manufacturer:
MCAC10H03A-TP	Micro Commercial Co
Series:	Product Status:
-	Active
FET Type:	Technology:
N-Channel	MOSFET (Metal Oxide)
Drain to Source Voltage (Vdss):	Current - Continuous Drain (Id) @ 25°C:
30 V	100A (Tc)
Drive Voltage (Max Rds On, Min Rds On):	Rds On (Max) @ Id, Vgs:
4.5V, 10V	3mOhm @ 20A, 10V
Vgs(th) (Max) @ Id:	Gate Charge (Qg) (Max) @ Vgs:
2.5V @ 250µA	85 nC @ 10 V
Vgs (Max):	Input Capacitance (Ciss) (Max) @ Vds:
±20V	3865 pF @ 15 V
FET Feature:	Power Dissipation (Max):
-	49W
Operating Temperature:	Mounting Type:
-55°C ~ 150°C (TJ)	Surface Mount
Supplier Device Package:	Package / Case:
DFN5060	8-PowerTDFN
Base Product Number:	
MCAC10	

Environmental & Export classification

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

Features

- Trench Power LV MOSFET Technology
- 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)

N-CHANNEL MOSFET

Maximum Ratings

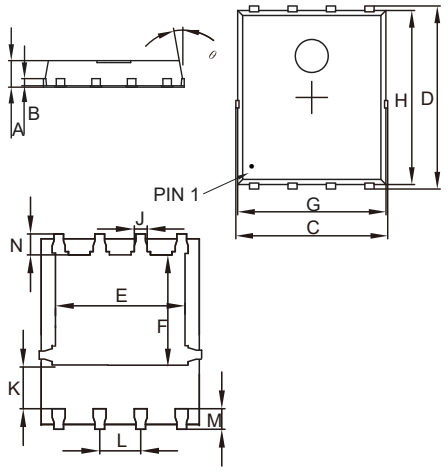
- Operating Junction Temperature Range : -55°C to +150°C
- Storage Temperature Range: -55°C to +150°C
- Therm Resistance:50°C/W Junction to Ambient(Steady-state)(Note2)
- Thermal Resistance: 1.3°C/W Junction to Case(Steady-state)

Parameter		Symbol	Rating	Unit
Drain-Source Voltage		V_{DS}	30	V
Gate-Source Volltage		V_{GS}	±20	V
Continuous Drain Current	T_C=25°C	I_D	100	A
	T_C=100°C		63	
Pulsed Drain Current (Note3)		I_{DM}	400	A
Total Power Dissipation(Note4)		P_D	96	W
Avalanche Energy (Note5)		E_{AS}	243	mJ

Note:

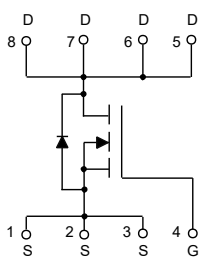
1. Halogen free "Green” products are defined as those which contain <900ppm bromine, <900ppm chlorine (<1500ppm total Br + Cl) and <1000ppm antimony compounds.
2. The value of $R_{\theta JA}$ is measured with the device mounted on 1in^2 FR-4 board with 2oz. Copper, in a still air environment with T_A =25°C.
3. Repetitive rating; pulse width limited by max. junction temperature.
4. P_D is based on max. junction temperature, using junction-case thermal resistance.
5. T_J=25°C, V_{DD}=20V, V_{GS}=10V, L=1.5mH

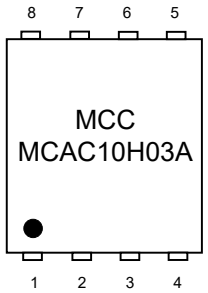
DFN5060



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	

Internal Structure and Marking Code





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	30			V
Gate-Source Leakage Current	I_{GSS}	V_{DS}=0V, V_{GS} =±20V			±100	nA
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}=30V, V_{GS}=0V			1	μA
Gate-Threshold Voltage	$V_{GS(th)}$	V_{DS}=V_{GS}, I_D=250μA	1	1.5	2.5	V
Drain-Source On-Resistance	$R_{DS(on)}$	V_{GS}=10V, I_D=20A		2.5	3	mΩ
		V_{GS}=4.5V, I_D=15A		2.9	4	
Gate Resistance	R_g	F=1 MHz, Open drain		1.4		Ω
Diode Characteristics						
Continuous Body Diode Current	I_S				100	A
Diode Forward Voltage	V_{SD}	V_{GS}=0V, I_S=20A		0.85	1.2	V
Reverse Recovery Time	t_{rr}	I_S=20A,di/dt=100A/μs		32.5		ns
Reverse Recovery Charge	Q_{rr}			24.1		nC
Dynamic Characteristics						
Input Capacitance	C_{iss}	V_{DS}=15V,V_{GS}=0V,f=1MHz		3620		pF
Output Capacitance	C_{oss}			588		
Reverse Transfer Capacitance	C_{rss}			528		
Total Gate Charge	Q_g	V_{DS}=15V,V_{GS}=10V,I_D=20A		76		nC
Gate-Source Charge	Q_{gs}			8.7		
Gate-Drain Charge	Q_{gd}			18.8		
Turn-On Delay Time	$t_{d(on)}$	V_{GS}=10V,V_{DD}=15V I_D=20A, R_{GEN}=3Ω		11		ns
Turn-On Rise Time	t_r			24.7		
Turn-Off Delay Time	$t_{d(off)}$			51.2		
Turn-Off Fall Time	t_f			28.6		

Curve Characteristics

Fig. 1 - Typical Output Characteristics

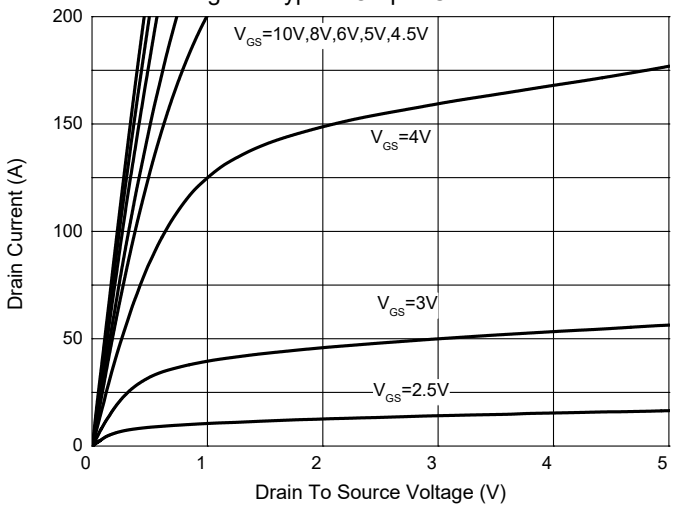


Fig. 2 - Transfer Characteristics

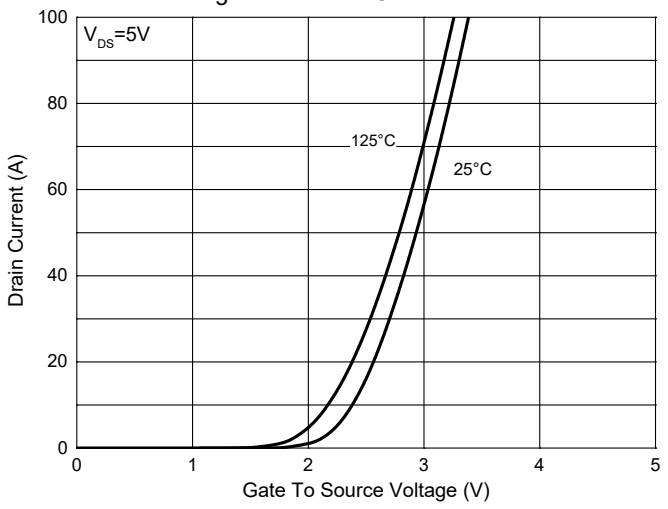


Fig. 3 - $R_{DS(ON)}$—V_{GS}

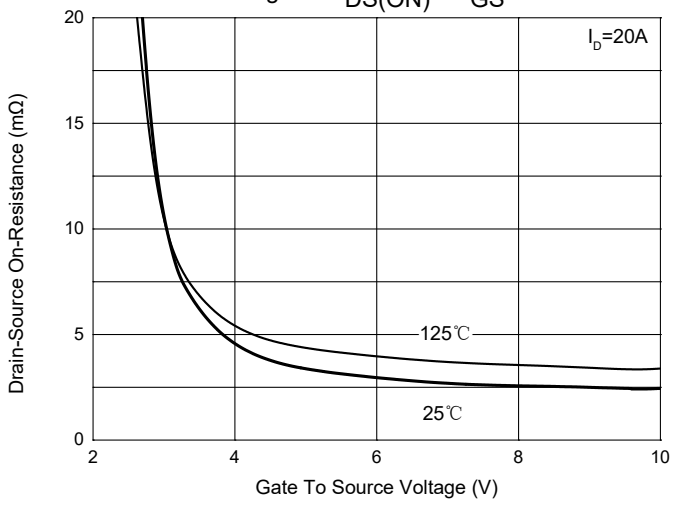


Fig. 4 - $R_{DS(ON)}$—I_D

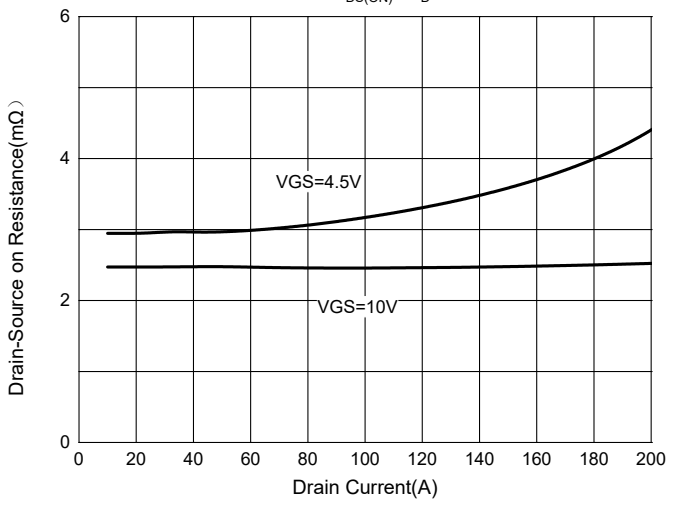


Fig. 5 - Capacitance Characteristics

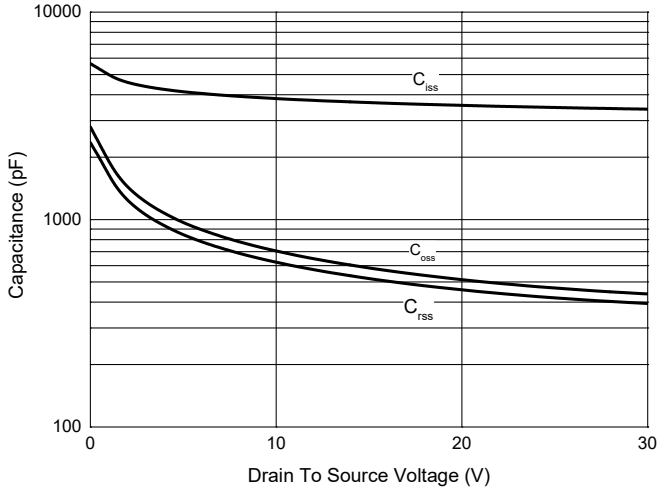
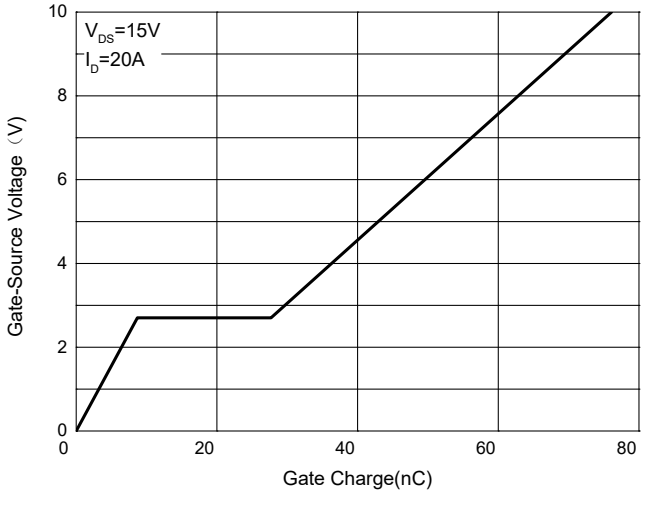


Fig. 6 - Gate Charge



Curve Characteristics

Fig. 7 - Nomalized Threshold Voltage

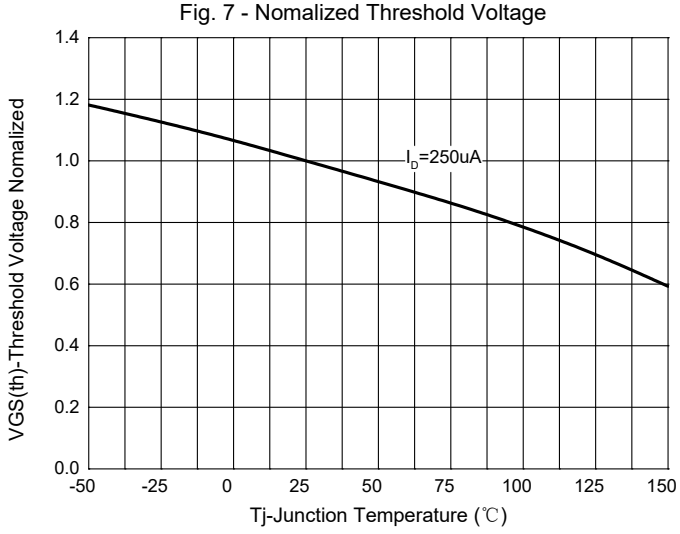


Fig.8-Normalized On Resistance Characteristics

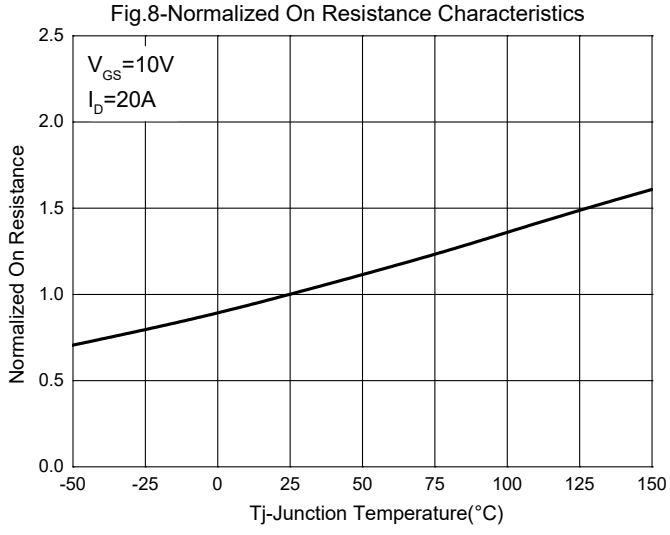


Fig.9 - I_S—V_{SD}

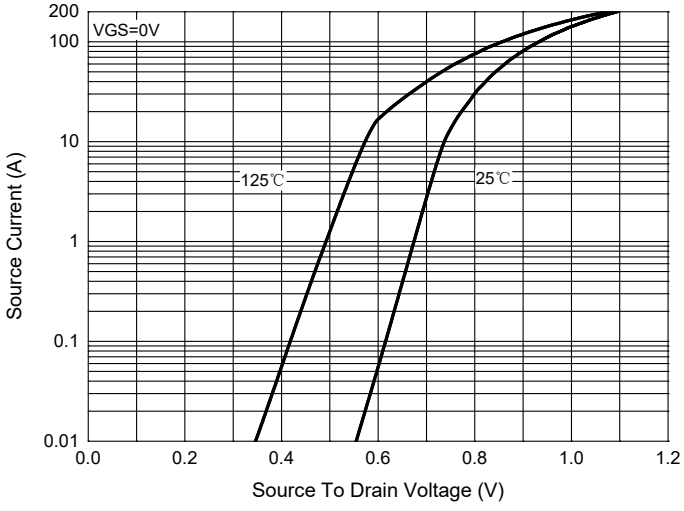


Fig. 10 - Drain Current

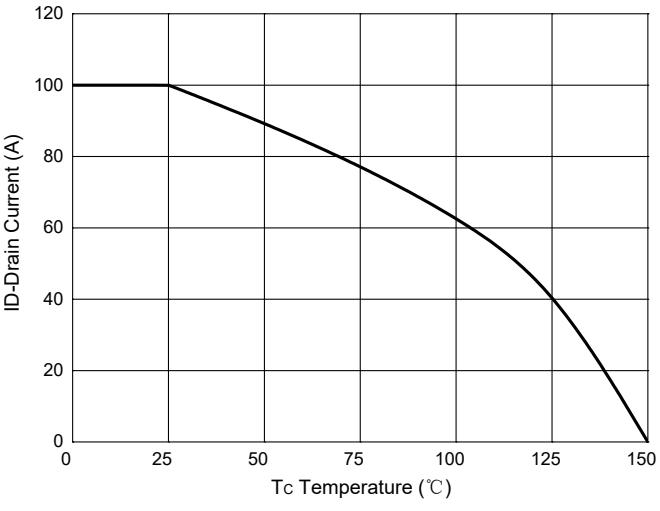
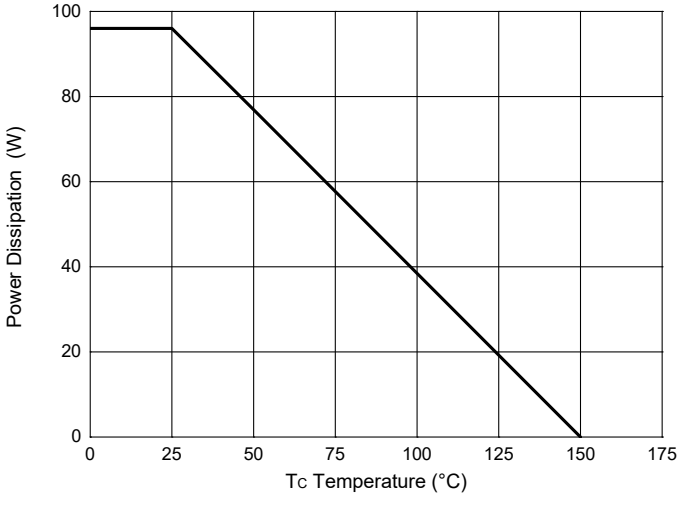


Fig.11-PD Dissipation



Curve Characteristics

Fig. 12 - Safe Operation Area

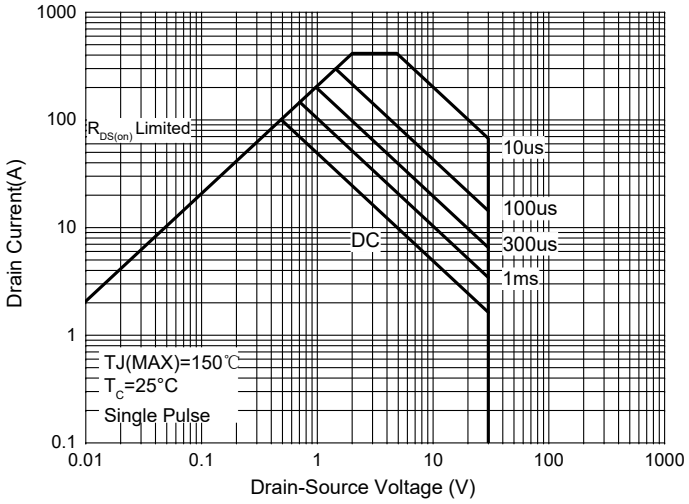
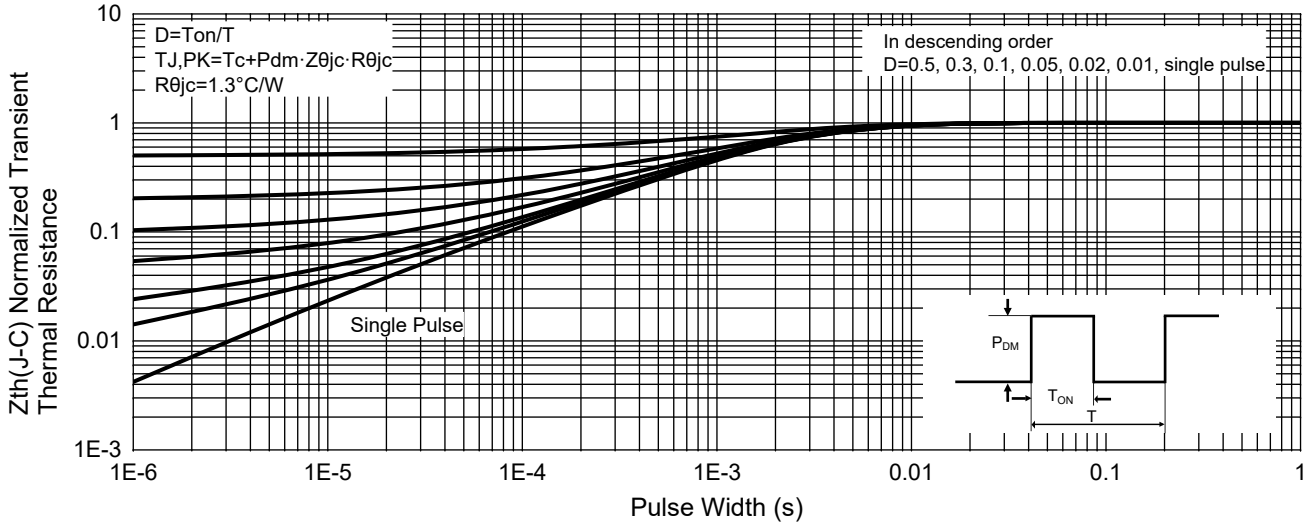


Fig. 13 -Normalized Transient Thermal Impedance

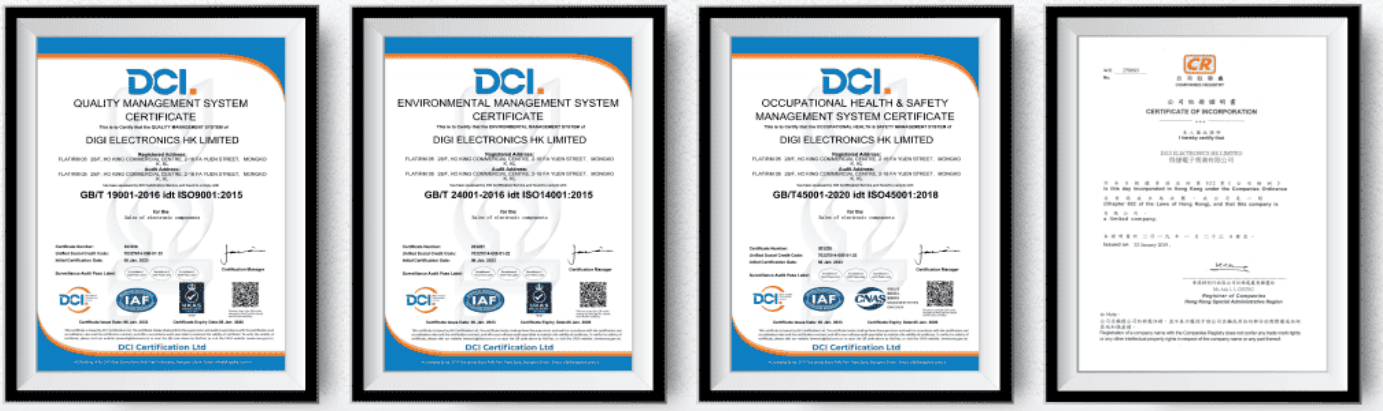


Ordering Information

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

OUR CERTIFICATE

DiGi provide top-quality products and perfect service for customer worldwide through standardization, technological innovation and continuous improvement. DiGi through third-party certification, we striciy control the quality of products and services. Welcome your RFQ to Email: Info@DiGi-Electronics.com



Tel: +00 852-30501935

RFQ Email: Info@DiGi-Electronics.com

DiGi is a global authorized distributor of electronic components.