ShinDengen

MG031L080006A

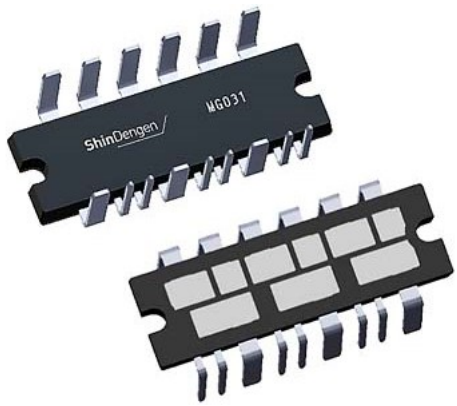
3 phase Inverter Module

Feature

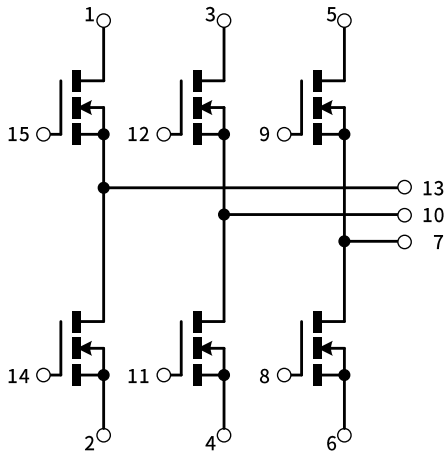
- 3 phase Inverter
- MOSFET(N-channel)
- High current capacity
- Low Ron
- Halogen free
- Pb free terminal
- RoHS:Yes

Outline

House Name: MG031



Equivalent circuit



Absolute maximum ratings （Tc = 25℃ unless otherwise specified ）

MOSFET

Item	Symbol	Conditions	Ratings	Unit
Channel temperature	Tch		175	℃
Drain-source voltage	V_{DSS}		60	V
Gate-source voltage	V_{GSS}		±20	V
Continuous drain current (DC)	I_D		80	A
Continuous drain current (Peak)	I_{DP}	Pulse width 10μs, Duty = 1/100	320	A
Total power dissipation	P_T		125	W
Single avalanche current	I_{AS}	Starting Tch=25°C Tch≦150°C	31	A
Single avalanche energy	E_{AS}	Starting Tch=25°C Tch≦150°C	116	mJ

Module

Item	Symbol	Conditions	Ratings	Unit
Storage temperature	Tstg		-55～150	℃
Mounting torque	TOR	Fixing screw M3	0.8	N・m

Electrical and thermal characteristics （Tc=25℃ unless otherwise specified.）

These are characteristics of the 1 chip unless otherwise specified.

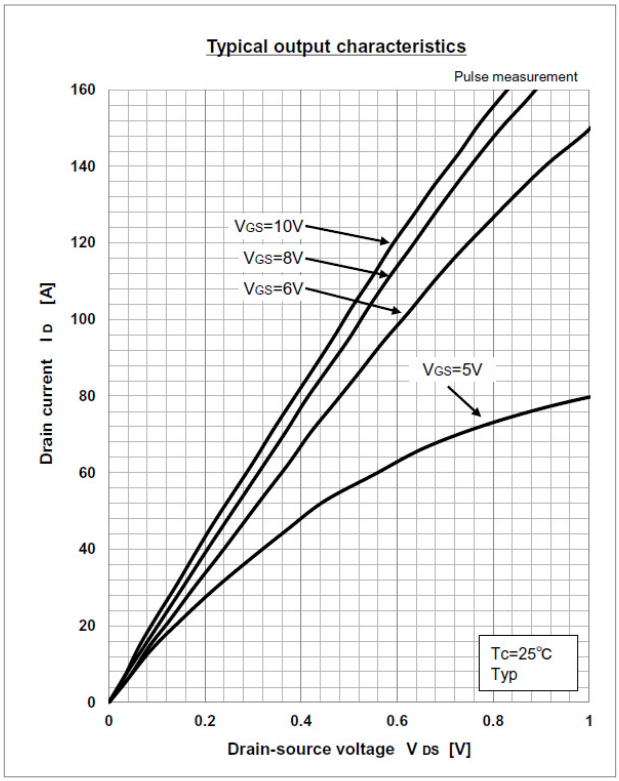
MOSFET

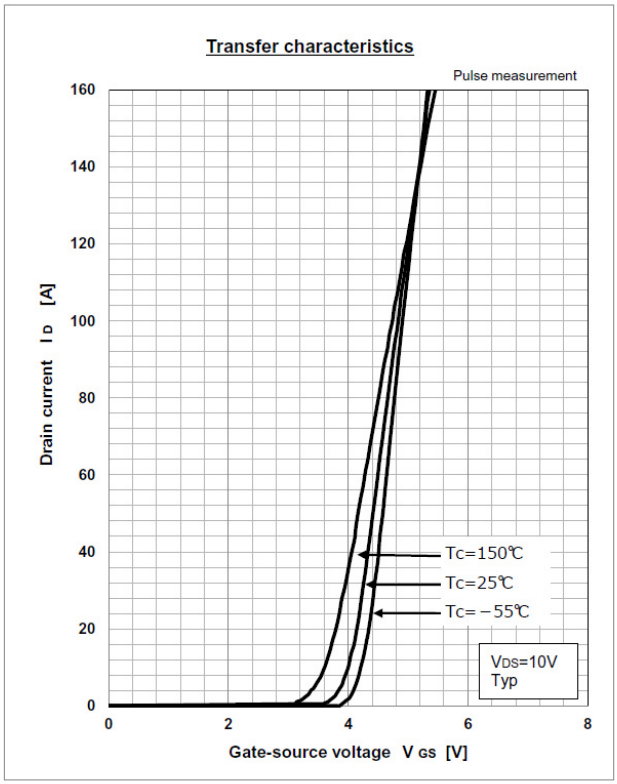
Item	Symbol	Conditions		Ratings			Unit
				Min.	Typ.	Max.	
Drain-source breakdown voltage	$V_{(BR)DSS}$	I_D=1mA, V_{GS}=0V		60	—	—	V
Zero gate voltage drain current	I_{DSS}	V_{DS}=60V, V_{GS}=0V		—	—	1.0	μA
Gate-source leakage current	I_{GSS}	V_{GS}=±20V, V_{DS}=0V		—	—	±0.1	μA
Static drain-source on-state resistance	$R_{DS(ON)}$	Chip	I_D=40A, V_{GS}=10V	—	3.74	—	mΩ
		Terminal	I_D=40A, V_{GS}=10V	—	4.2	5.6	mΩ
Gate threshold voltage	V_{TH}	I_D=1mA, V_{DS}=10V		2.0	3.0	4.0	V
Source-drain diode forward voltage	V_{SD}	Is=80A, V_{GS}=0V		—	—	1.5	V
Total gate charge	Qg	V_{DD}=48V, V_{GS}=10V, I_D=80A (Electrical characteristics of discrete MOSFET device)		—	60	—	nC
Gate to source charge	Qgs			—	17	—	
Gate to drain charge	Qgd			—	18	—	
Input capacitance	Ciss	V_{DS}=25V, V_{GS}=0V, f=1MHz (Electrical characteristics of discrete MOSFET device)		—	3381	—	pF
Reverse transfer capacitance	Crss			—	164	—	
Output capacitance	Coss			—	380	—	
Turn-on delay time	td(on)	I_D=40A, V_{DD}=30V, R_L=0.75Ω, Rg=0Ω, $V_{GS(+)}$=10V, $V_{GS(-)}$=0V (Electrical characteristics of discrete MOSFET device)		—	9	—	ns
Rise time	tr			—	37	—	
Turn-off delay time	td(off)			—	30	—	
Fall time	tf			—	7	—	
Source-drain diode reverse recovery time	trr	I_F=80A, V_{GS}=0V, di/dt=100A/μs		—	32	—	ns
Source-drain diode reverse recovery charge	Qrr			—	47	—	nC

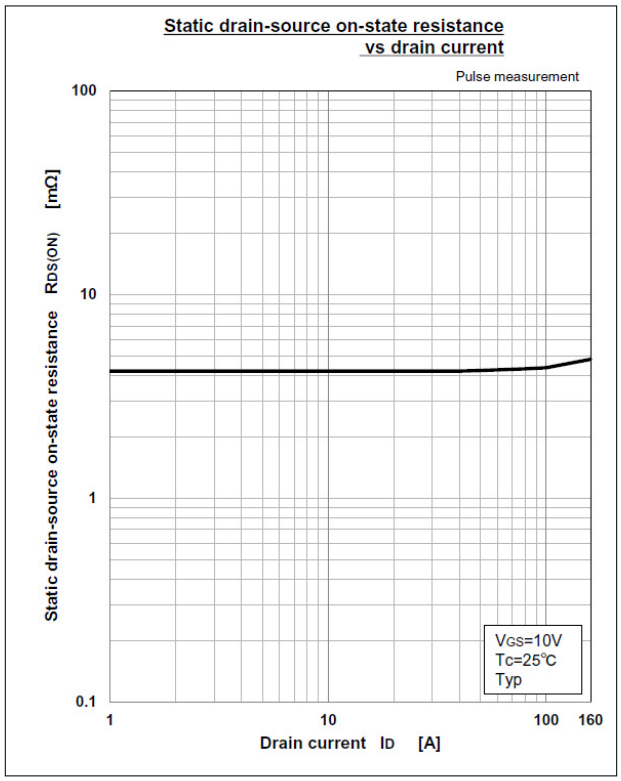
Module

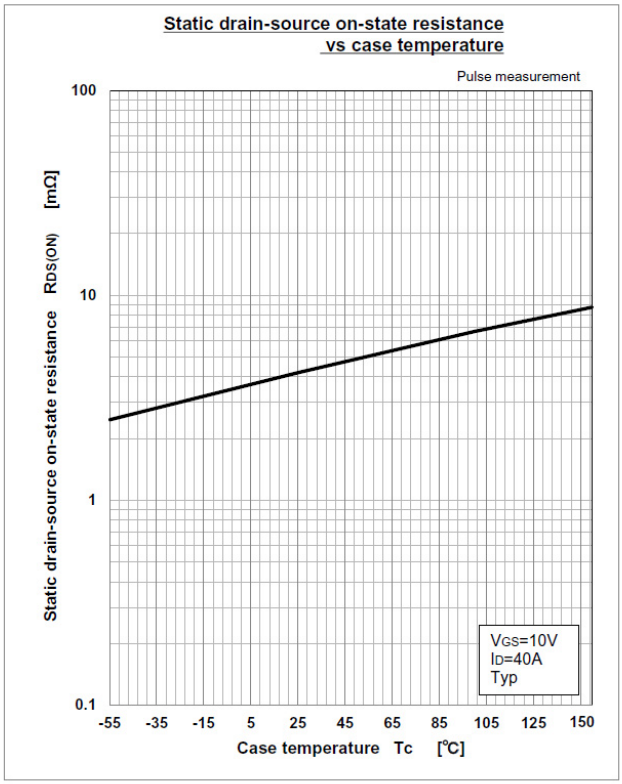
Item	Symbol	Conditions	Ratings			Unit
			Min.	Typ.	Max.	
Thermal resistance	$R_{th(j-c)}$	Junction to case	—	—	1.2	°C/W
	$R_{th(j-l)}$	Junction to lead	—	—	1.7	
		Junction to lead, With insulating sheet, Thickness 0.3mm, Thermal conductivity 3.9W/mK	—	—	2.5	

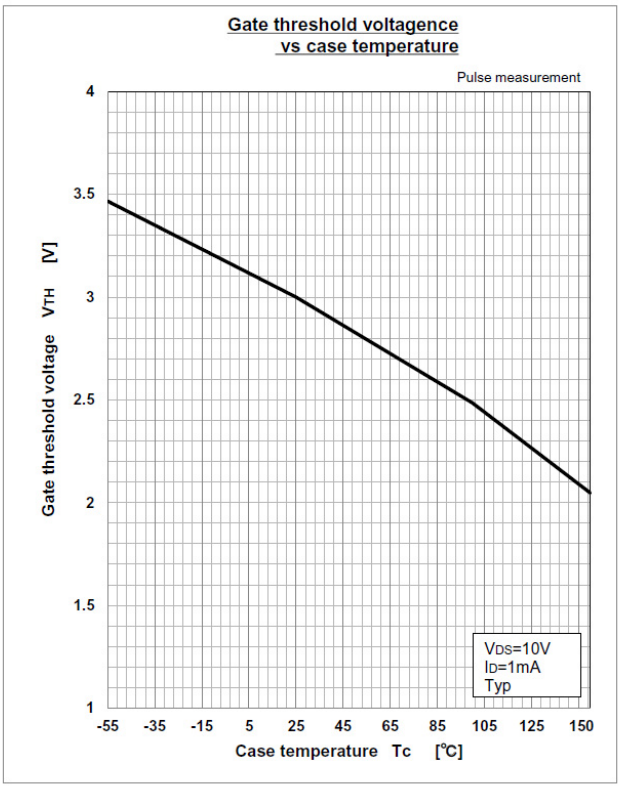
CHARACTERISTIC DIAGRAMS

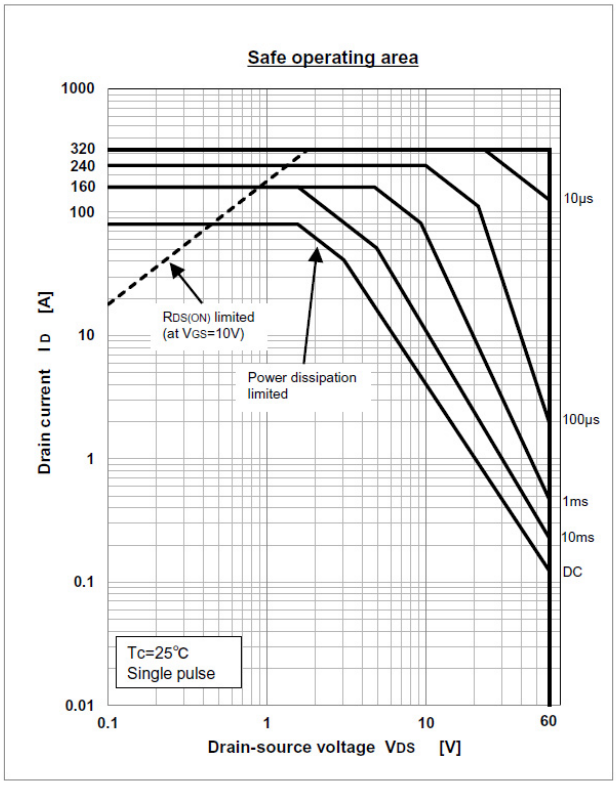


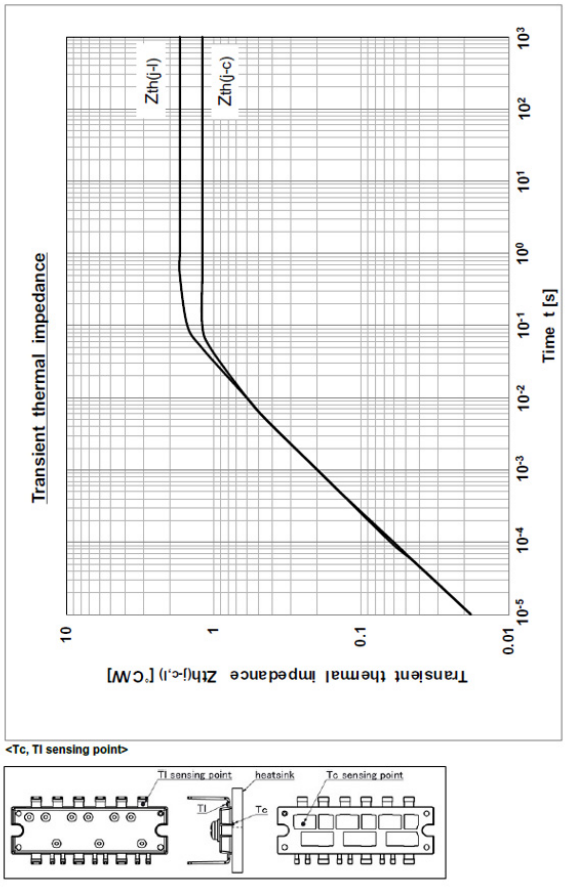




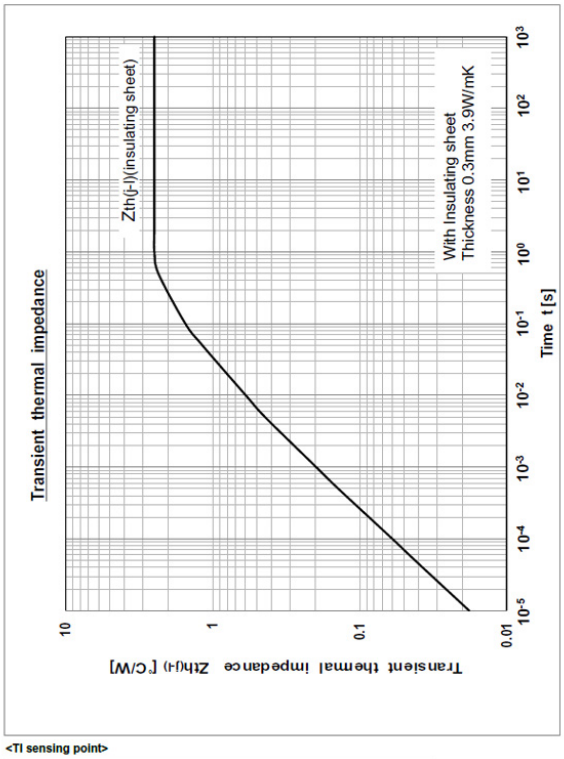




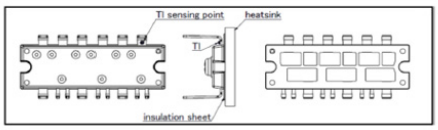




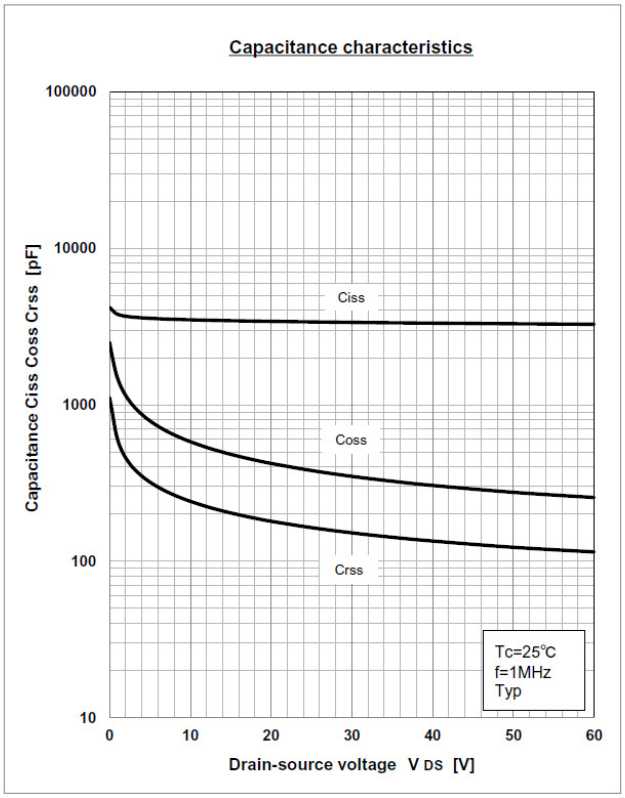
<Tc, Tl sensing point>

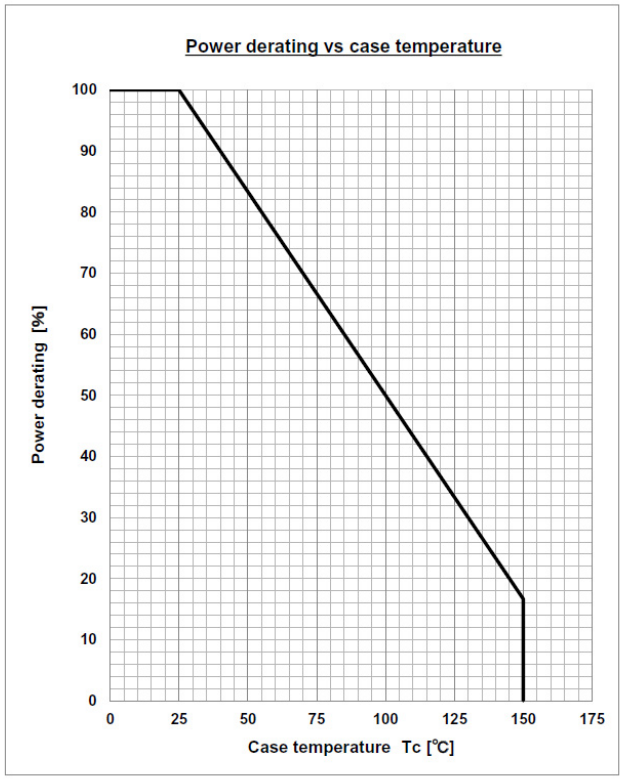


<TI sensing point>



This figure shows the data of a discrete MOSFET device.





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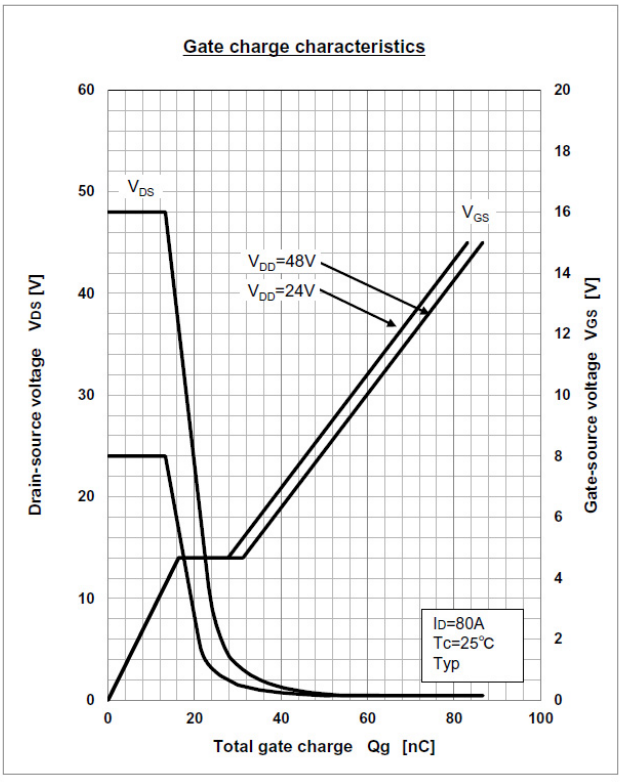
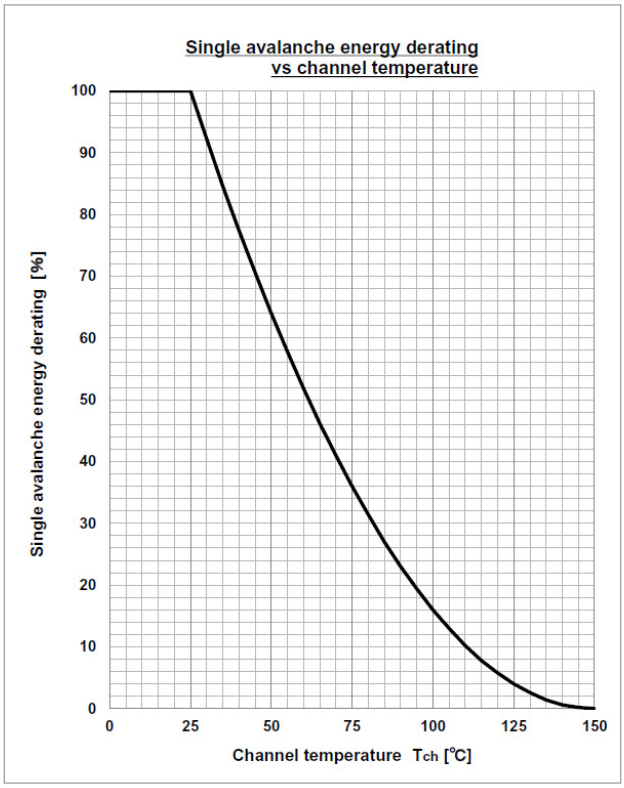


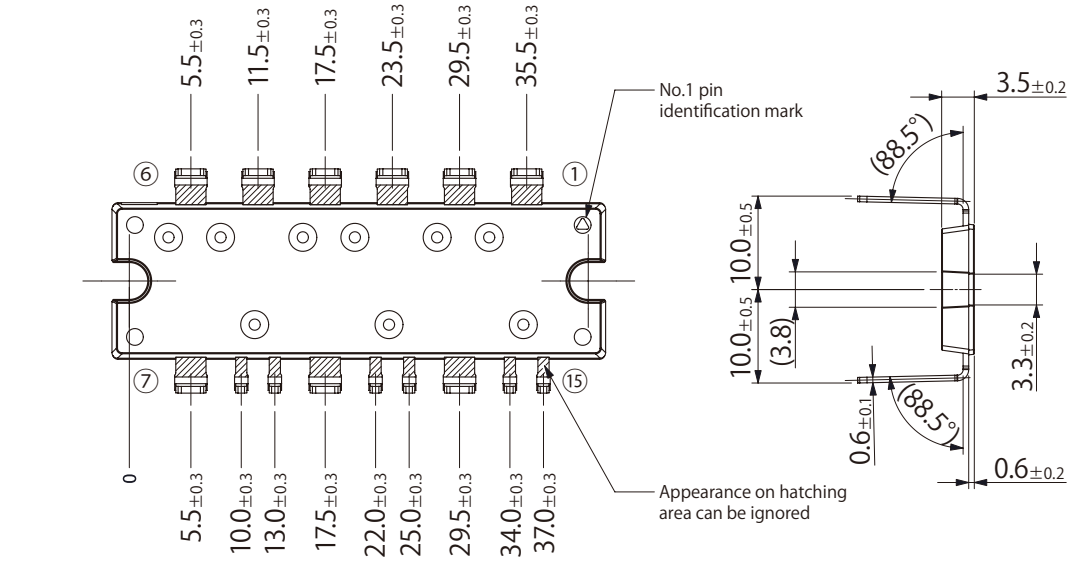


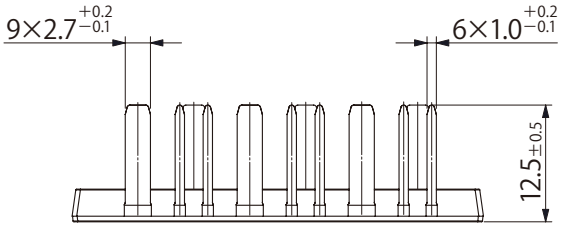
Package Outline-Dimensions

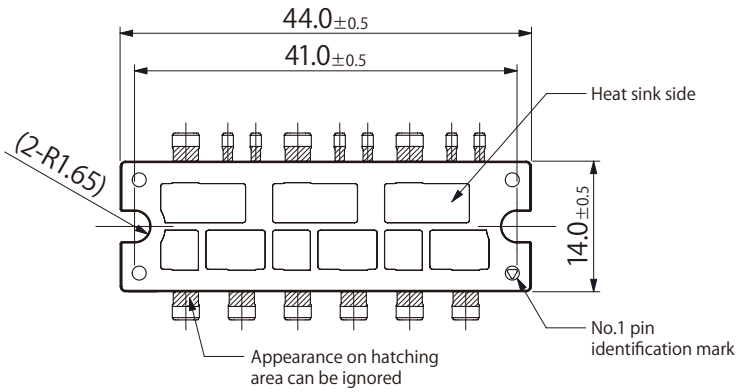
unit : mm

F5

JEDEC Code	–
JEITA Code	–
House Name	MG031







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ShinDengen

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