ShinDengen

MG032B420010A

3 phase Inverter Module

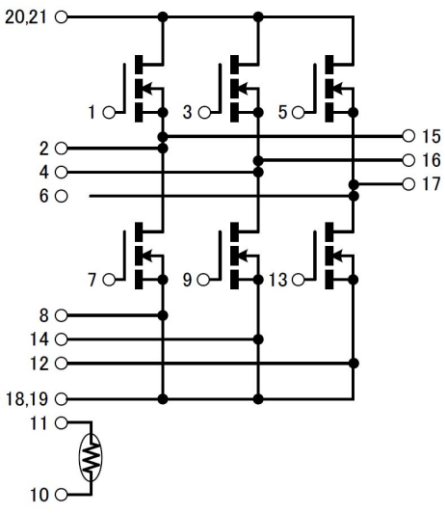
Feature

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

Outline

House Name: MG032

Equivalent circuit



Absolute maximum ratings (Tc = 25°C unless otherwise specified)

MOSFET

Item	Symbol	Conditions	Ratings	Unit
Channel temperature	T_{ch}		150	°C
Drain-source voltage	V_{DSS}		100	V
Gate-source voltage	V_{GSS}		±20	V
Continuous drain current (DC)	I_D	Ratings per 2 chip	420	A
Continuous drain current (Peak)	I_{DP}	Pulse width 10μs, Duty = 1/100, Ratings per 1 arm	840	A
Total power dissipation	P_T	Ratings per 2 chip	500	W
Single avalanche current	I_{AS}	Starting T_{ch}=25°C , T_{ch}≦150°C , Ratings per 2 chip	108	A
Single avalanche energy	E_{AS}	Starting T_{ch}=25°C , T_{ch}≦150°C , Ratings per 2 chip	580	mJ

Module

Item	Symbol	Conditions	Ratings	Unit
Storage temperature	T_{stg}		-40～125	°C
Dielectric strength	V_{dis}	Terminal to Cu base , AC50Hz 1 minute , Cutoff=5mA	2.0	kV
Mounting torque	TOR	Fixing screw M5 (for mount module)	3.5	N・m
		Fixing screw M6 (for external connection)	4.5	

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

These are characteristics of the 2 chip unless otherwise specified.

MOSFET

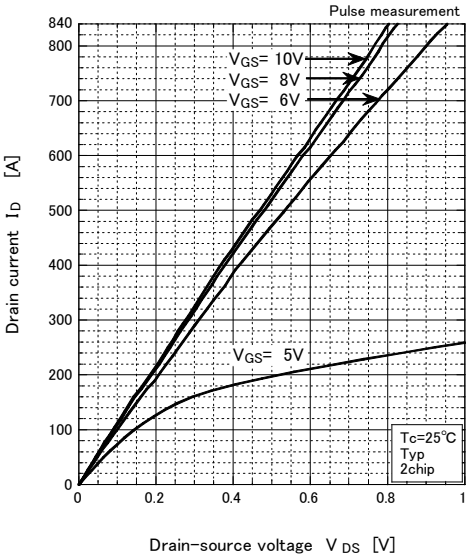
Item	Symbol	Conditions	Ratings			Unit
			Min.	Typ.	Max.	
Drain-source breakdown voltage	$V_{(BR)DSS}$	I_D=2mA , V_{GS}=0V	100	—	—	V
Zero gate voltage drain current	I_{DSS}	V_{DS}=100V , V_{GS}=0V	—	—	4	μA
Gate-source leakage current	I_{GSS}	V_{GS}=±20V , V_{DS}=0V	—	—	±0.2	μA
Drain-source on-state resistance	$R_{DS(ON)}$	I_D=210A , V_{GS}=10V	—	0.99	1.37	mΩ
Gate threshold voltage	V_{TH}	I_D=2mA , V_{DS}=10V	2.0	3.0	4.0	V
Source-drain diode forward voltage	V_{SD}	I_S=210A , V_{GS}=0V	—	—	1.5	V
Total gate charge	Q_g	V_{DD}=80V , V_{GS}=10V , I_D=180A , Rating of per MOSFET	—	500	—	nC
Gate to source charge	Q_{gs}		—	130	—	
Gate to drain charge	Q_{gd}		—	210	—	
Input capacitance	C_{iss}	V_{DS}=25V , V_{GS}=0V , f=1MHz	—	91800	—	pF
Reverse transfer capacitance	C_{rss}		—	8260	—	
Output capacitance	C_{oss}		—	12290	—	

Turn-on delay time	td(on)	I_D=90A , R_L=0.55Ω , V_{DD}=50V , R_G=0Ω , $V_{GS(+)}$=10V , $V_{GS(-)}$=0V , Rating of per MOSFET	—	20	—	ns
Rise time	tr		—	140	—	
Turn-off delay time	td(off)		—	473	—	
Fall time	tf		—	275	—	

Module

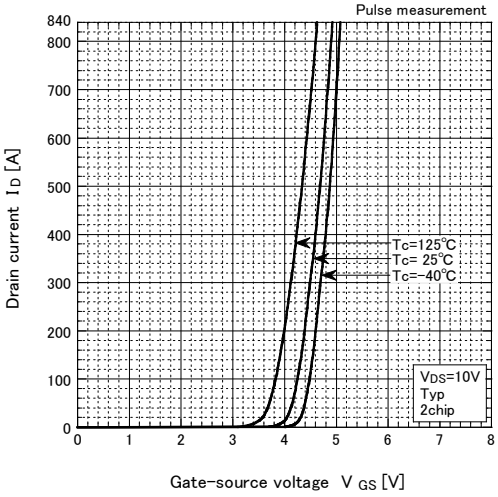
Item	Symbol	Conditions	Ratings			Unit
			Min.	Typ.	Max.	
Thermal resistance	$R_{th(j-c)}$	Junction to case , With heatsink	—	—	0.25	°C/W

Typical output characteristics



Note: The above characteristics curves are presented for reference only and not guaranteed by production test,unless otherwise noted.

Transfer characteristics



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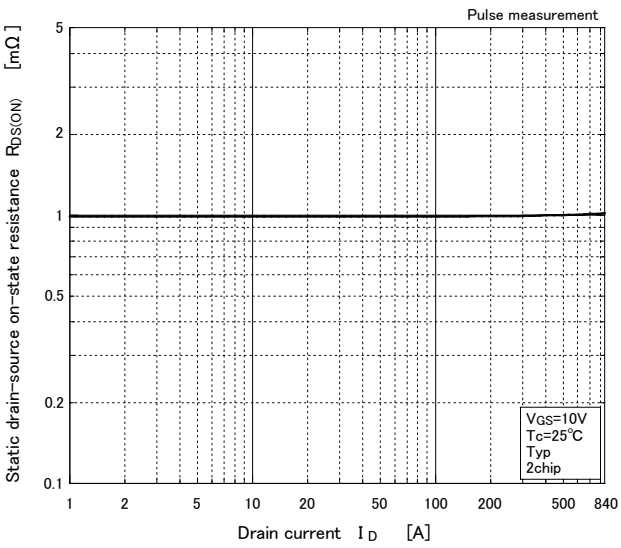
Static drain-source on-state resistance vs drain current



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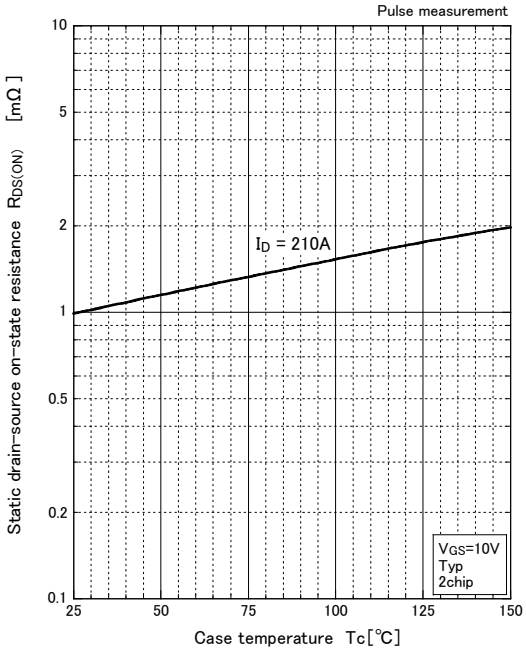
Static drain-source on-state resistance vs case temperature



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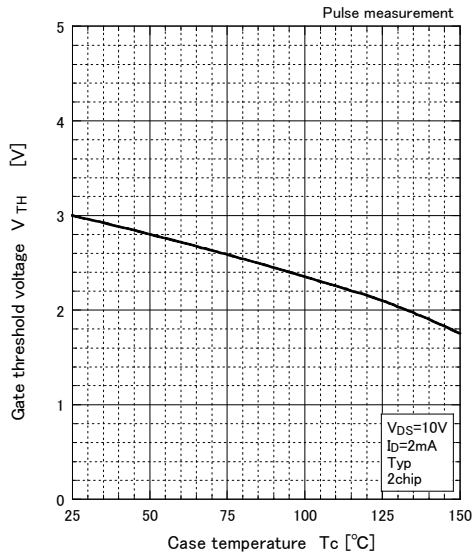
Gate threshold voltage vs case temperature



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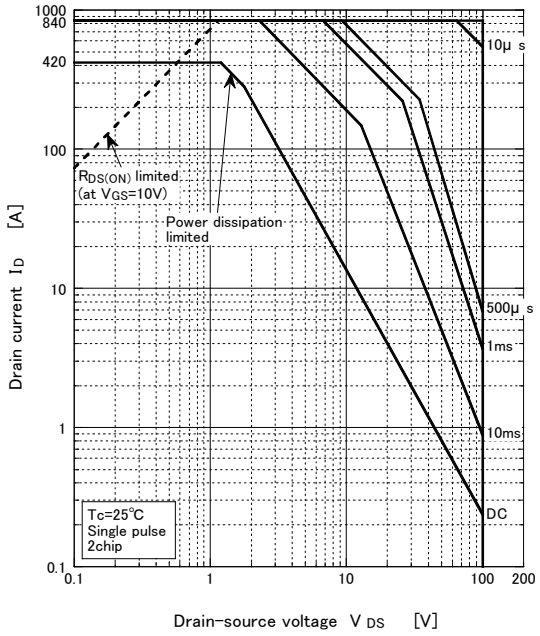
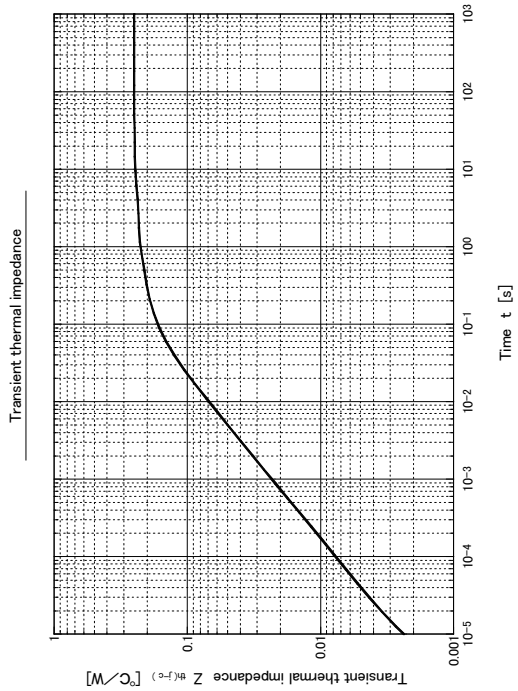
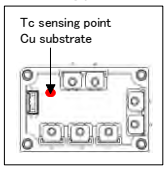
Safe operating area



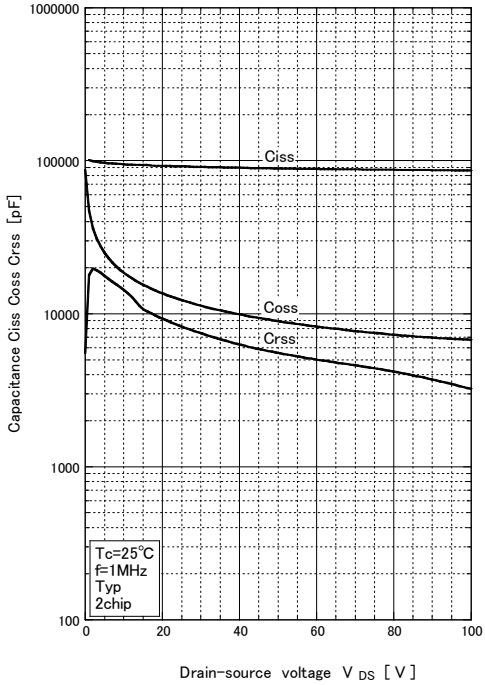
Transient thermal impedance



Tc sensing point



Capacitance characteristics



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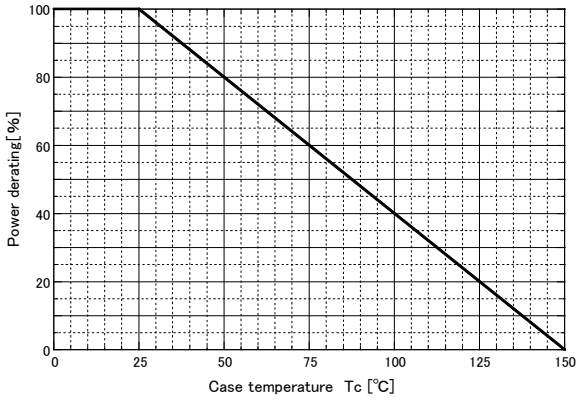
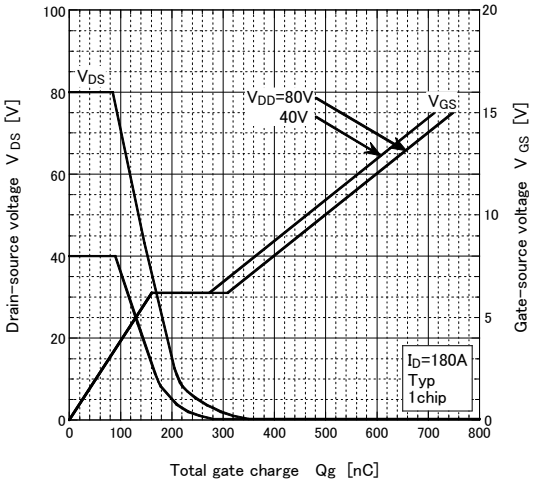
Power derating – case temperature



Gate charge characteristics



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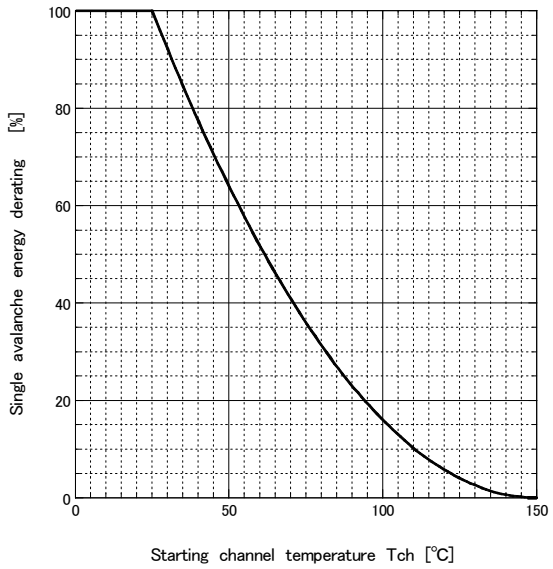
Single avalanche energy derating
vs channel temperature

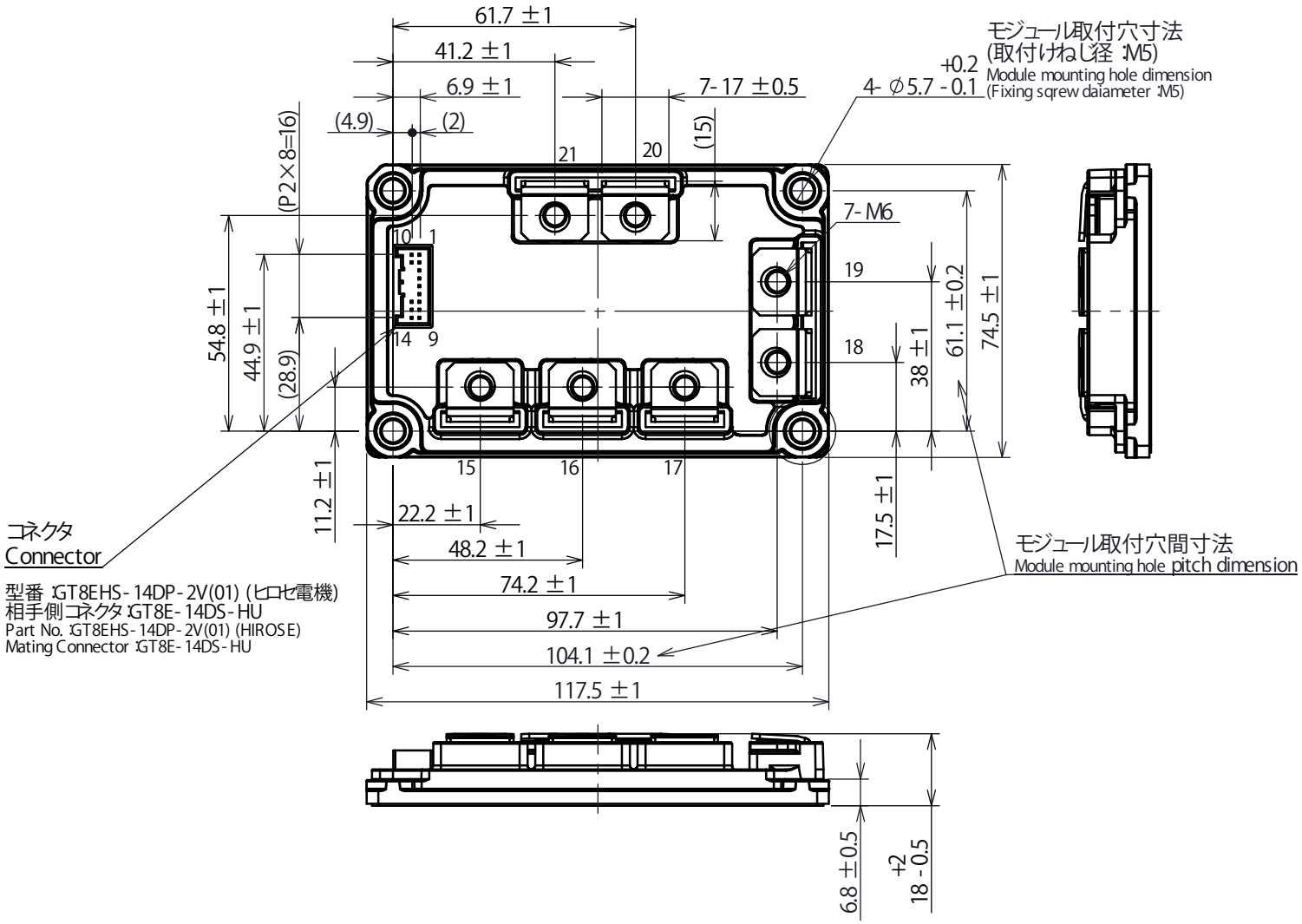


Package Outline-Dimensions

unit:mm

F6

JEDEC Code	–
JEITA Code	–
House Name	MG032



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