ShinDengen

MG032A4207R5A

3 phase Inverter Module

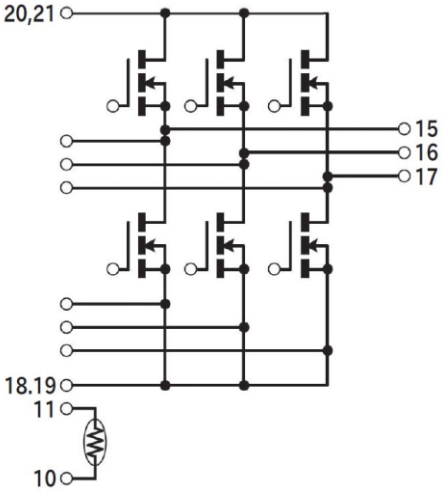
Feature

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

Outline

House Name: MG032

Equivalent circuit



●絶対最大定格 Absolute maximum ratings （指定のない場合はTc=25℃/ Tc=25℃ unless otherwise specified）

MOS FET

項目 Item	記号 Symbol	条件 Conditions	規格値 Ratings	単位 Unit
チャネル温度 Channel temperature	Tch		150	℃
ドレイン・ソース間電圧 Drain-source voltage	V_{DSS}		75	V
ゲート・ソース間電圧 Gate-source voltage	V_{GSS}		±20	
ドレイン電流（直流） Continuous drain current (DC)	I_D	2素子当りの規格値 These are characteristics of the 2 devices	420	A
ドレイン電流（ピーク） Continuous drain current (Peak)	I_{DP}	パルス幅 10μ s, Duty = 1/100 Pulse width 10μ s, Duty = 1/100	840	
全損失 Total power dissipation	P_T		500	W
単発アバランシェ電流 Single avalanche current	I_{AS}	開始 Tch=25℃ Tch≦150℃ , 2素子当りの規格値 Starting Tch=25℃ Tch≦150℃ , These are characteristics of the 2 devices	108	A
単発アバランシェエネルギー Single avalanche energy	E_{AS}	開始 Tch=25℃ Tch≦150℃ , 2素子当りの規格値 Starting Tch=25℃ Tch≦150℃ , These are characteristics of the 2 devices	580	mJ

Module

項目 Item	記号 Symbol	条件 Conditions	規格値 Ratings	単位 Unit
保存温度 Storage temperature	Tstg		−40～125	℃
絶縁耐圧 Dielectric strength	Vdis	一括端子・銅ベース間 , AC1分間印加 , カットオフ 5mA Terminal to Cu base , AC 1 minute , Cutoff=5mA	2.0	kV
締め付けトルク Mounting torque	TOR	固定ネジ M5 (モジュール取付け部) Fixing screw M5 (For mount module)	3.5Max	N・m
		固定ネジ M6 (外部接続部) Fixing screw M6 (For external connection)	4.5Max	N・m

●電気的・熱的特性 Electrical and thermal characteristics

指定のない場合は、Tc=25℃ / Tc=25℃ unless otherwise specified.

指定のない場合は、2素子当りの規格値。/ These are characteristics of the 2 devices unless otherwise specified.

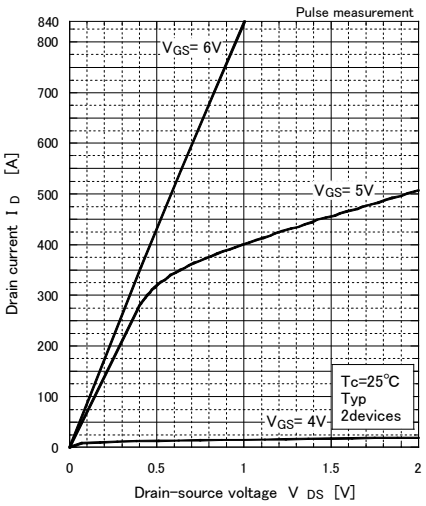
MOS FET

項目 Item	記号 Symbol	条件 Conditions	規格値 Ratings Min.	Typ.	Max.	単位 Unit
ドレイン・ソース間降伏電圧 Drain-source breakdown voltage	$V_{(BR)DSS}$	I_D=2mA , V_{GS}=0V	78	–	–	V
ドレイン遮断電流 Zero gate voltage drain current	I_{DSS}	V_{DS}=75V , V_{GS}=0V	–	–	4.0	μA
ゲート漏れ電流 Gate-source leakage current	I_{GSS}	V_{GS}=±20V , V_{DS}=0V	–	–	±0.2	
ドレイン・ソース間オン抵抗 Static drain-source on-state resistance	$R_{DS(ON)}$	I_D=210A , V_{GS}=10V	–	–	0.98	mΩ
ゲートしきい値電圧 Gate threshold voltage	V_{TH}	I_D=2mA , V_{DS}=10V	2.5	3.0	3.5	V
ソース・ドレイン間ダイオード順電圧 Source-drain diode forward voltage	V_{SD}	I_S=210A , V_{GS}=0V	–	–	1.5	
ゲート全電荷量 Total gate charge	Qg	V_{DD}=60V,V_{GS}=10V,I_D=180A	–	505	–	nC
ゲート・ソース電荷量 Gate to source charge	Qgs	(※1device)	–	130	–	
ゲート・ドレイン電荷量 Gate to drain charge	Qgd		–	210	–	
入力容量 Input capacitance	Ciss	V_{DS}=25V , V_{GS}=0V , f=1MHz	–	80120	–	pF
帰還容量 Reverse transfer capacitance	Crss		–	6000	–	
出力容量 Output capacitance	Coss		–	15080	–	
ターンオン遅延時間 Turn-on delay time	td(on)	I_D=90A , R_L=0.42Ω , V_{DD}=37.5V , R_G=0Ω , $V_{GS(+)}$=10V , $V_{GS(-)}$=0V (※1device)	–	20	–	ns
上昇時間 Rise time	tr		–	147	–	
ターンオフ遅延時間 Turn-off delay time	td(off)		–	460	–	
降下時間 Fall time	tf		–	274	–	

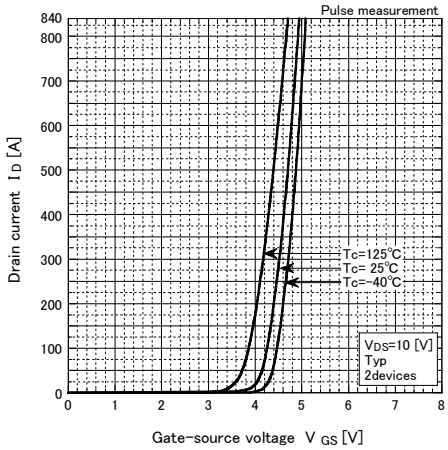
Module

項目 Item	記号 Symbol	条件 Conditions	規格値 Ratings Min.	Typ.	Max.	単位 Unit
熱抵抗 Thermal resistance	$R_{th(j-c)}$	接合部・ケース間, フィン付き Junction to case, With heatsink	–	–	0.25	℃/W

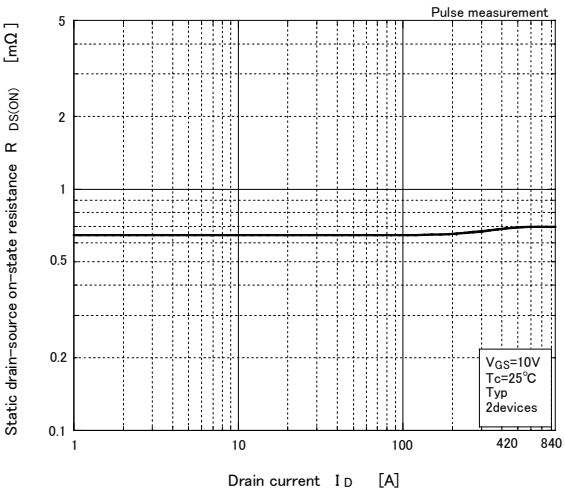
Typical output characteristics



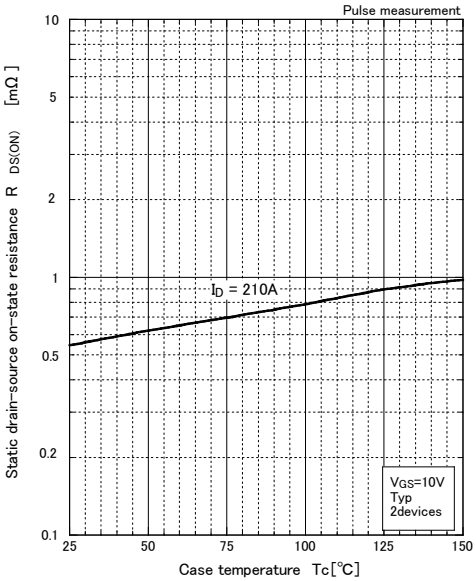
Transfer characteristics



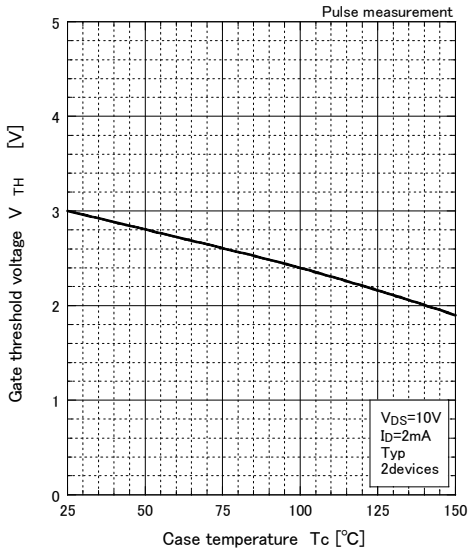
Static drain-source on-state resistance vs drain current



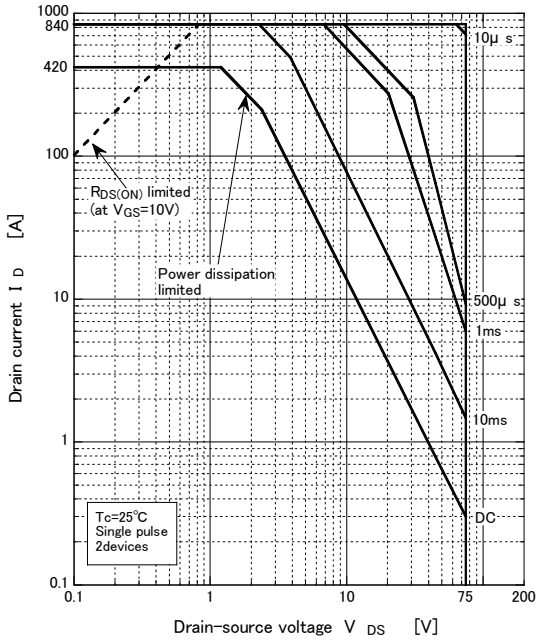
Static drain-source on-state resistance vs case temperature



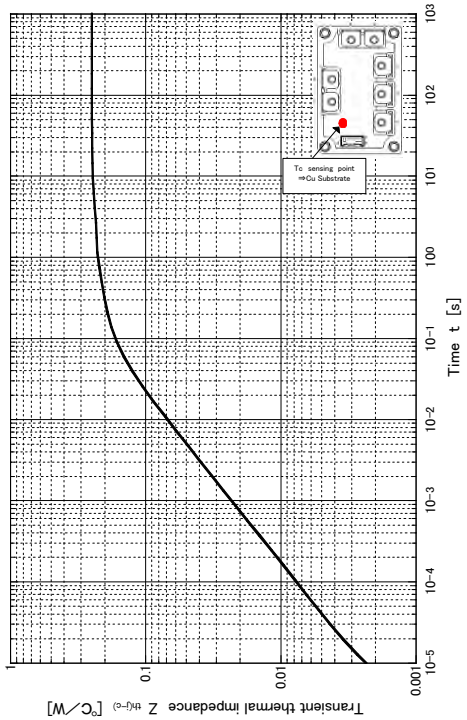
Gate threshold voltage
vs case temperature



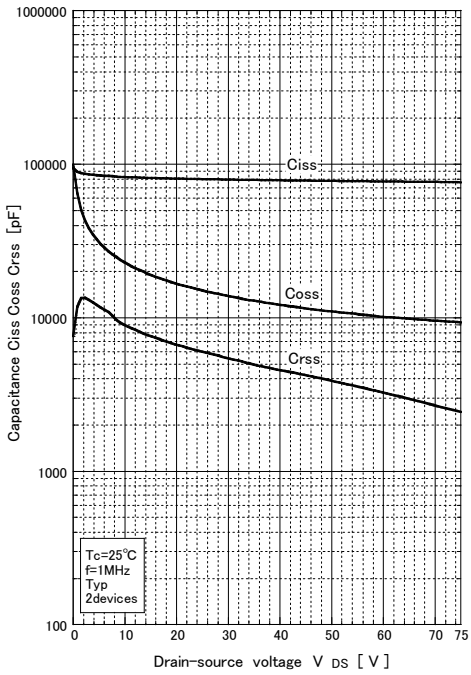
Safe operating area



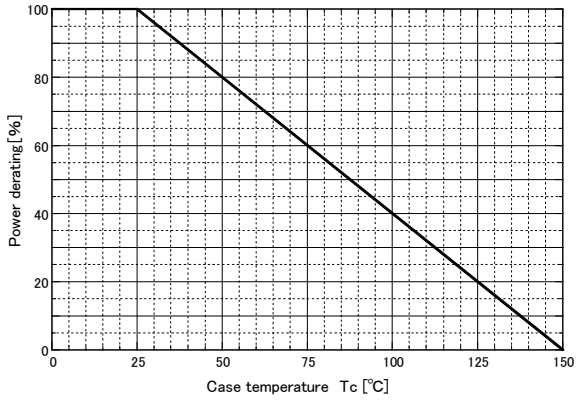
Transient thermal Impedance



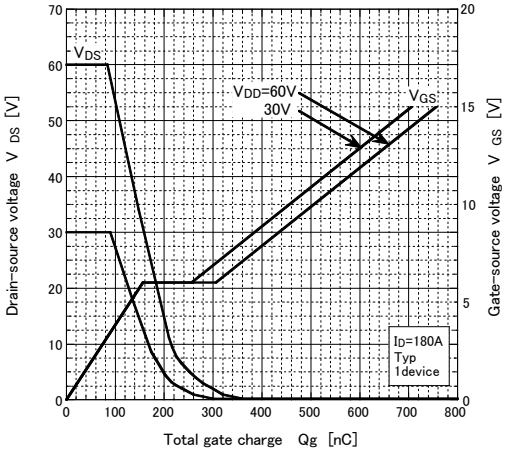
Capacitance characteristics



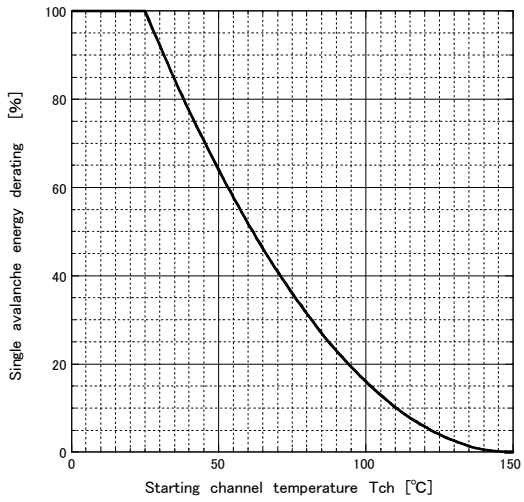
Power derating – case temperature



Gate charge characteristics



Single avalanche energy derating
vs channel temperature

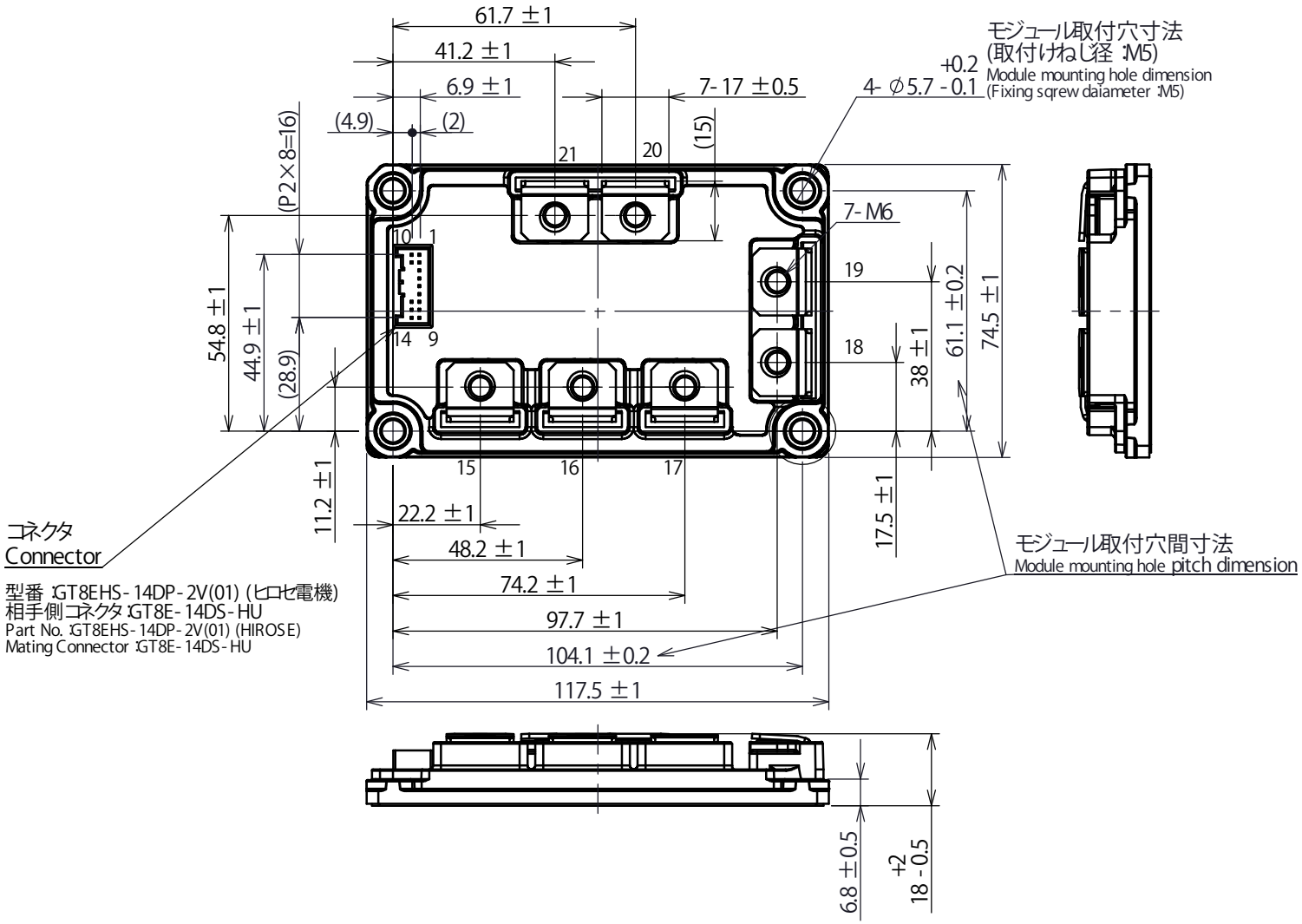


Package Outline-Dimensions

unit:mm

F6

JEDEC Code	–
JEITA Code	–
House Name	MG032



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