MG031AF150006A

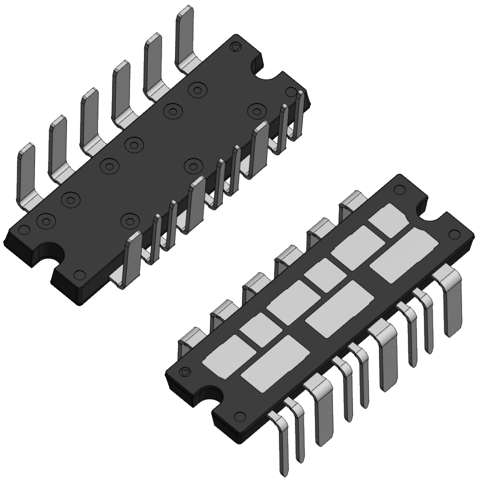
3-phase inverter bridge

Features

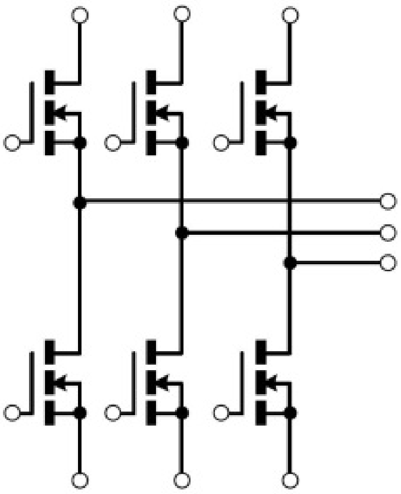
- 3 phase Inverter
- Cu clips
- Compact design DIP package
- Tch=175° C guarantee
- Pb free terminal
- RoHS:Yes

Outline

House Name:



Equivalent Circuit



Absolute Maximum Ratings（Tc = 25℃ unless otherwise specified ）

MOSFET

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		175	℃
ドレイン・ソース間電圧 Drain-source voltage	V_{DSS}		60	V
ゲート・ソース間電圧 Gate-source voltage	V_{GSS}		±20	V
ドレイン電流（直流） Continuous drain current (DC)	I_D		150	A
ドレイン電流（ピーク） Continuous drain current (Peak)	I_{DP}	パルス幅　10μs, Duty = 1/100 Pulse width　10μs, Duty = 1/100	600	A
全損失 Total power dissipation	P_T		154	W
単発アバランシェ電流 Single avalanche current	I_{AS}	開始 Tch=25℃　Tch≦150℃ Starting Tch=25℃　Tch≦150℃	47	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℃ Starting Tch=25℃　Tch≦150℃	258	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		-55～150	℃
締め付けトルク Mounting torque	TOR	固定ネジ　M3 Fixing screw M3	0.8	N・m

Electrical Characteristics（Tc=25℃ unless otherwise specified.）

MOSFET

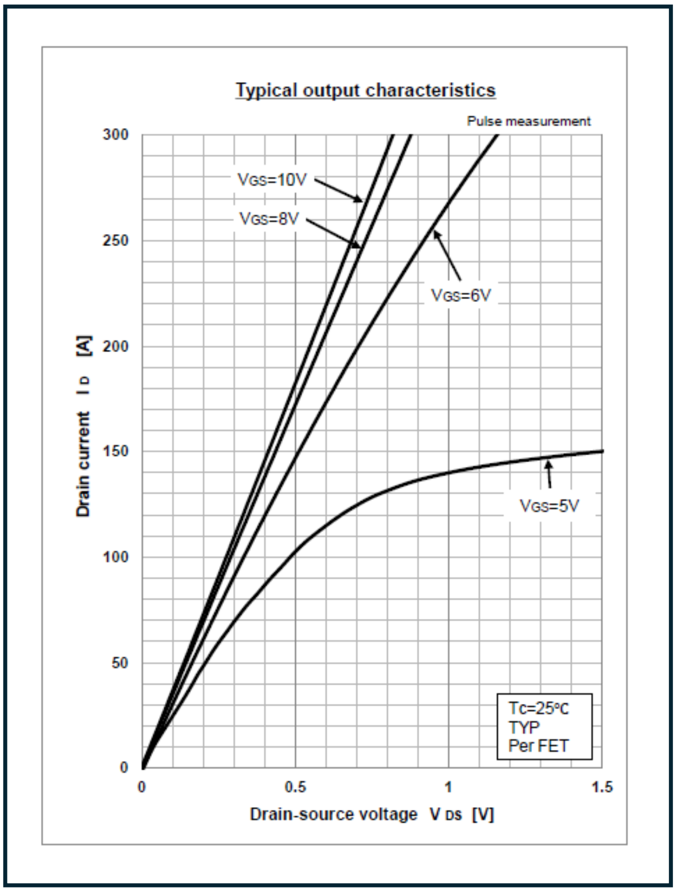
項目 Item	記号 Symbol	条件 Conditions	規格値 Ratings			単位 Unit
			Min.	Typ.	Max.	
ドレイン・ソース間降伏電圧 Drain-source breakdown voltage	$V_{(BR)DSS}$	I_D=1mA, V_{GS}=0V	60	－	－	V
ドレイン遮断電流 Zero gate voltage drain current	I_{DSS}	V_{DS}=60V, V_{GS}=0V	－	－	1.0	μA
ゲート漏れ電流 Gate-source leakage current	I_{GSS}	V_{GS}=±20V, V_{DS}=0V	－	－	±0.1	μA
ドレイン・ソース間オン抵抗 Static drain-source on-state resistance	$R_{DS(ON)}$	Chip I_D=75A, V_{GS}=10V	－	1.86	－	mΩ
		Terminal I_D=75A, V_{GS}=10V	－	2.36	2.95	mΩ
ゲートしきい値電圧 Gate threshold voltage	V_{TH}	I_D=1mA, V_{DS}=10V	2.0	3.0	4.0	V
ソース・ドレイン間ダイオード順電圧 Source-drain diode forward voltage	V_{SD}	Is=100A, V_{GS}=0V	－	－	1.5	V
ゲート全電荷量 Total gate charge	Qg	V_{DD}=48V, V_{GS}=10V, I_D=100A (ディスクリートMOSFETデバイスの電気的特性値) (Electrical characteristics of discrete MOSFET device)	－	72	－	nC
ゲート・ソース電荷量 Gate to source charge	Qgs		－	21	－	
ゲート・ドレイン電荷量 Gate to drain charge	Qgd		－	26	－	
入力容量 Input capacitance	Ciss	V_{DS}=25V, V_{GS}=0V, f=1MHz (ディスクリートMOSFETデバイスの電気的特性値) (Electrical characteristics of discrete MOSFET device)	－	4800	－	pF
帰還容量 Reverse transfer capacitance	Crss		－	160	－	
出力容量 Output capacitance	Coss		－	2030	－	
ターンオン遅延時間 Turn-on delay time	td(on)	I_D=50A, V_{DD}=30V, R_L=0.6Ω, Rg=0Ω, $V_{GS(+)}$=10V, $V_{GS(-)}$=0V (ディスクリートMOSFETデバイスの電気的特性値) (Electrical characteristics of discrete MOSFET device)	－	12	－	ns
上昇時間 Rise time	tr		－	58	－	
ターンオフ遅延時間 Turn-off delay time	td(off)		－	30	－	
降下時間 Fall time	tf		－	12	－	
ソース・ドレイン間ダイオード逆回復時間 Source-drain diode reverse recovery time	trr	IF=100A, VGS=0V, di/dt=-100A/μs (ディスクリートMOSFETデバイスの電気的特性値) (Electrical characteristics of discrete MOSFET device)	－	63	－	ns
ソース・ドレイン間ダイオード逆回復電荷量 Source-drain diode reverse recovery charge	Qrr		－	85	－	nC

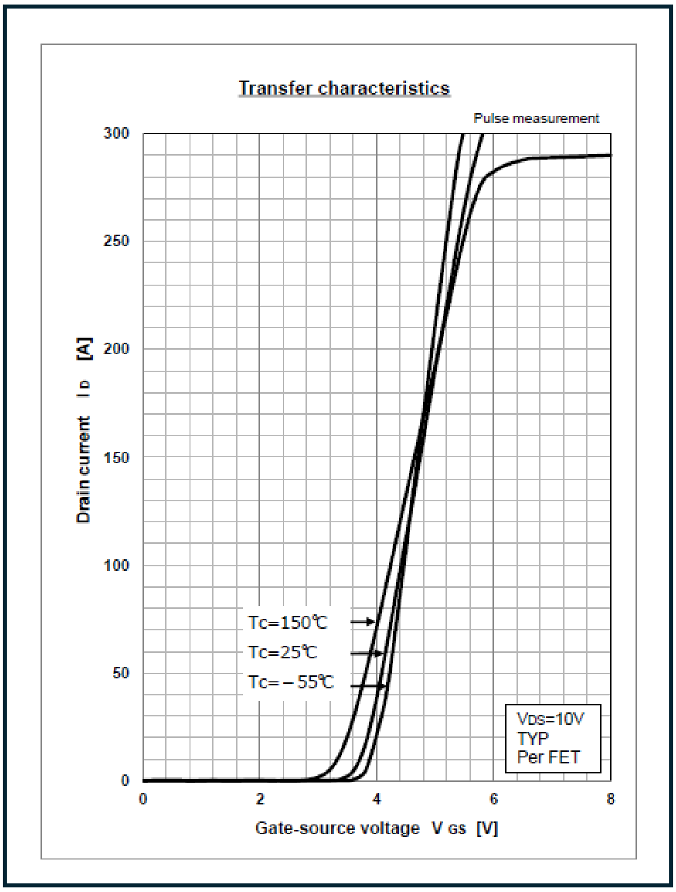
Electrical Characteristics（Tc=25℃ unless otherwise specified.）

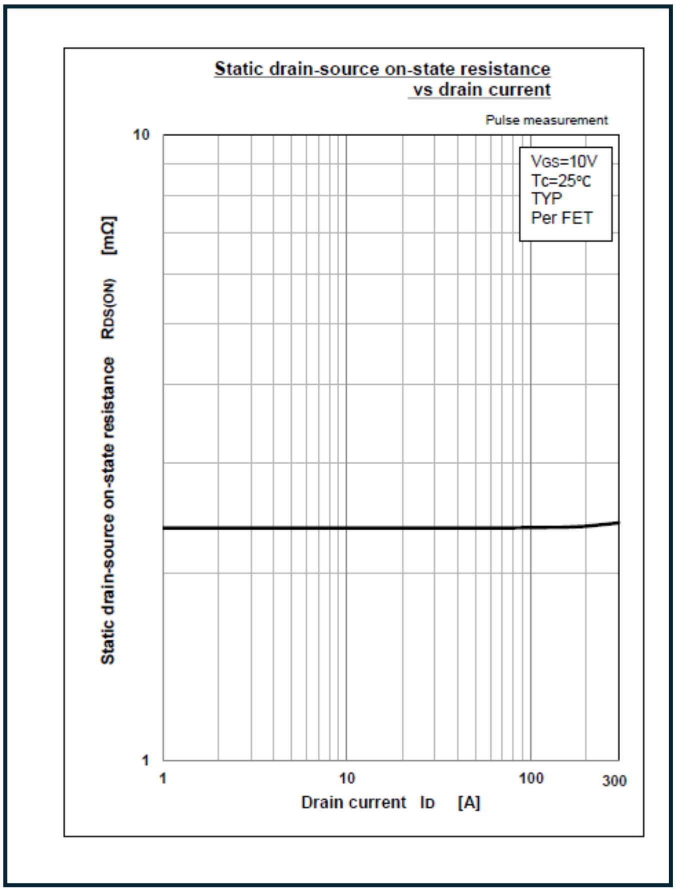
Module

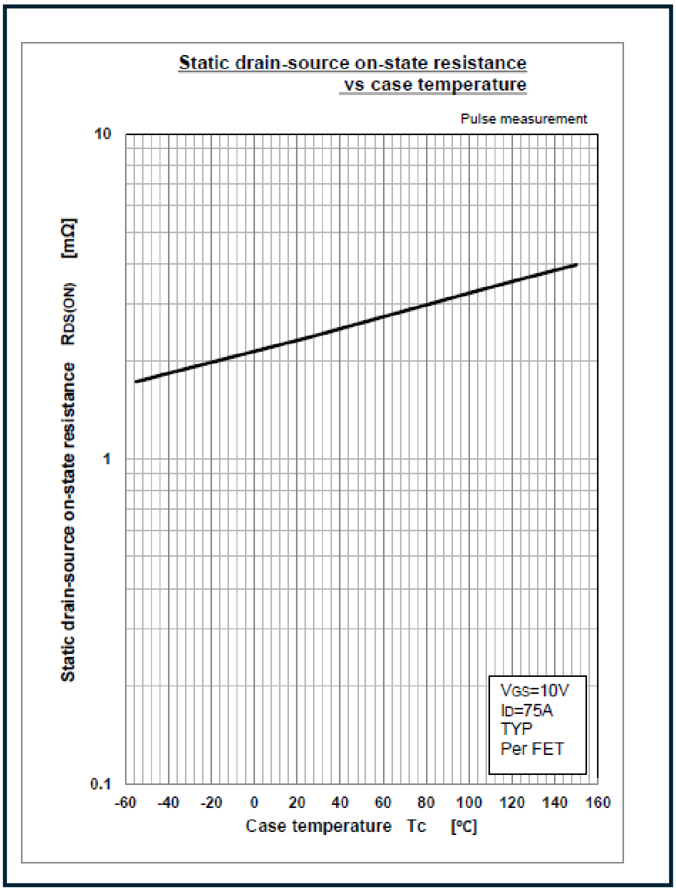
項目 Item	記号 Symbol	条件 Conditions	規格値 Ratings Min.	 Typ.	 Max.	単位 Unit
熱抵抗 Thermal resistance	$R_{th(j-c)}$	接合部・ケース間 Junction to case	–	–	0.97	℃/W
	$R_{th(j-l)}$	接合部・リード間 Junction to lead	–	–	1.41	
		接合部・リード間(絶縁シート), 厚さ 0.3 ㎜, 熱伝導率 3.9W/mK Junction to lead, With insulating sheet, Thickness 0.3mm, Thermal conductivity 3.9W/mK	–	–	2.16	

CHARACTERISTIC DIAGRAMS

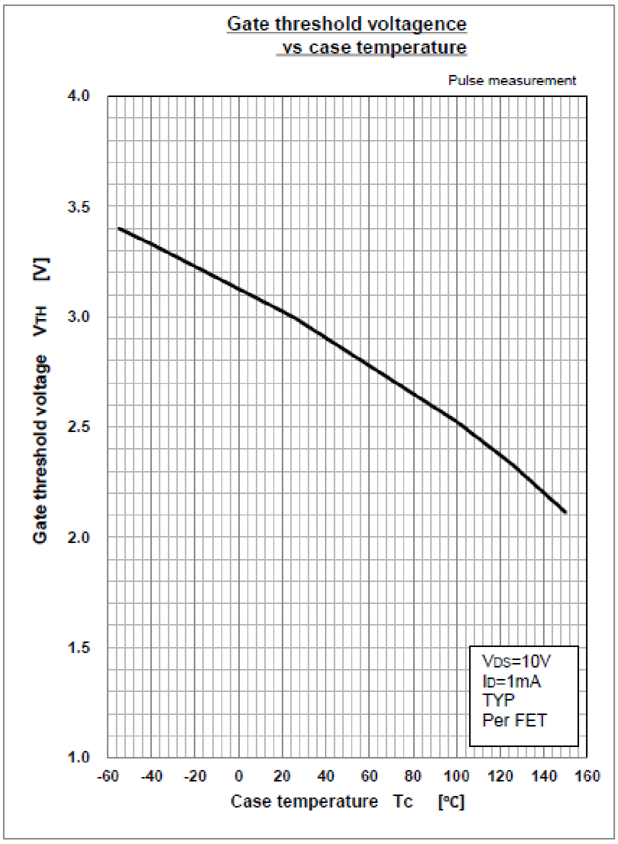


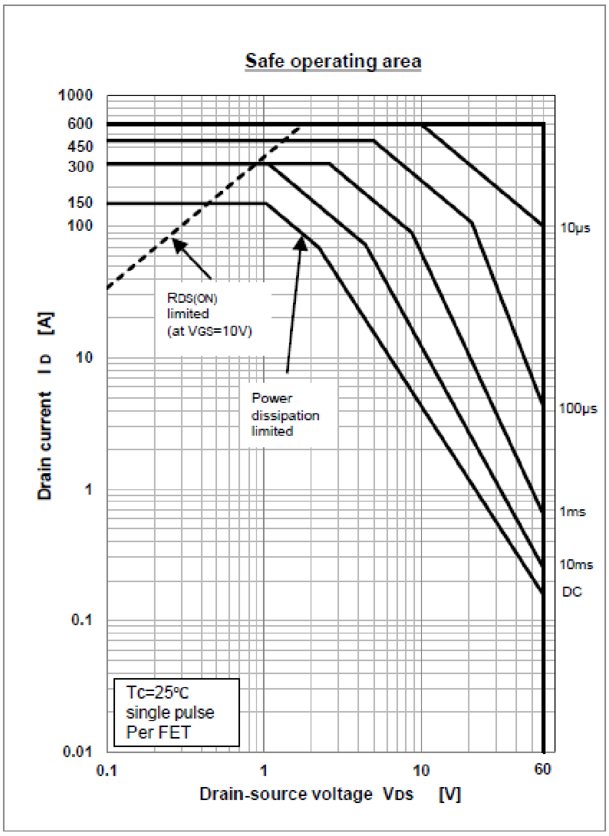


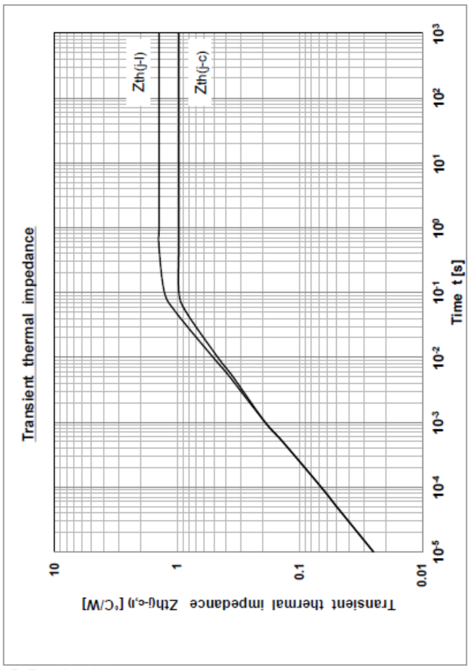




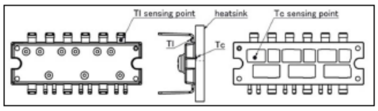
CHARACTERISTIC DIAGRAMS

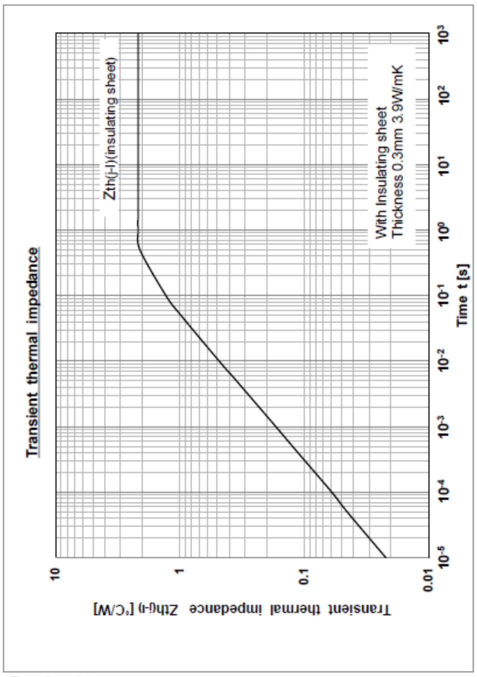






<Tc, Tl sensing point>





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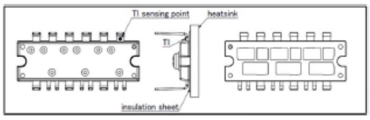
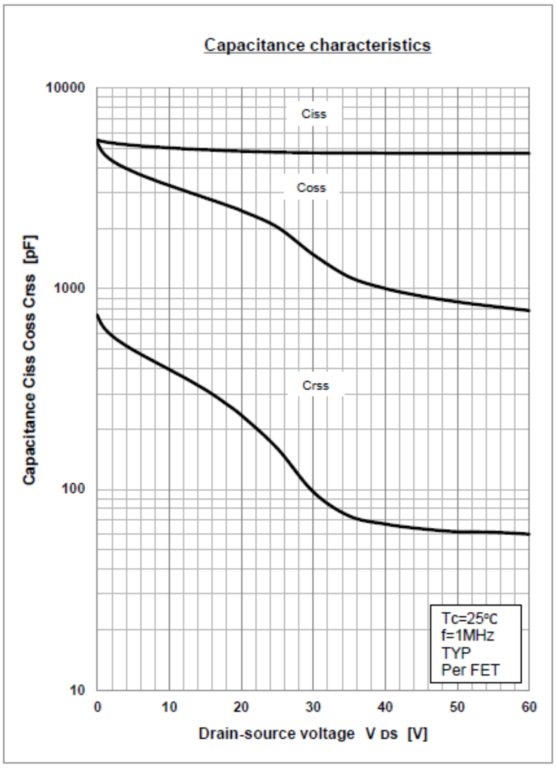
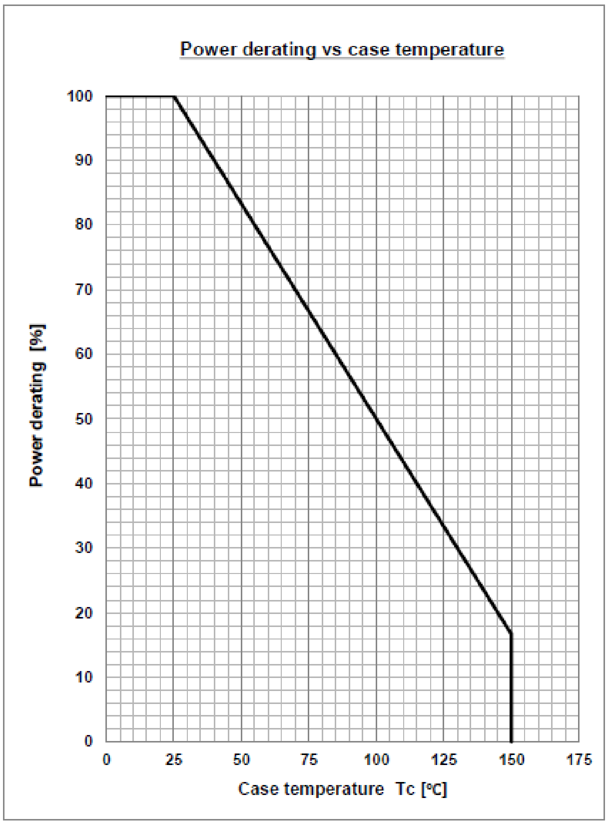


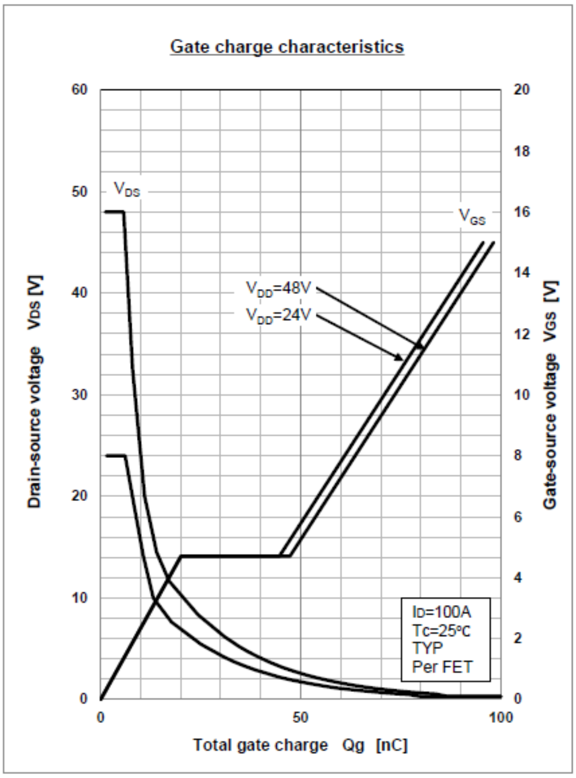
CHARACTERISTIC DIAGRAMS

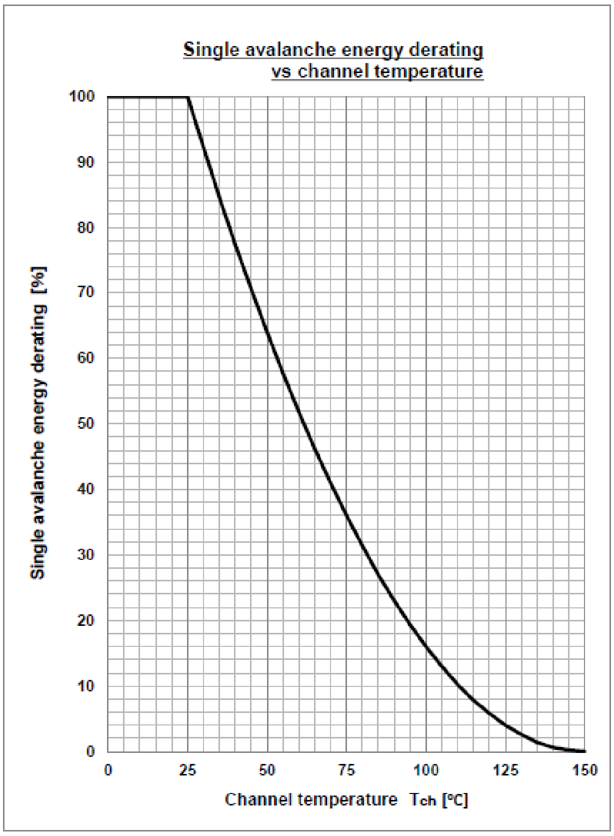
This figure shows the data of a discrete MOSFET device.


Capacitance characteristics


Power derating vs case temperature

This figure shows the data of a discrete MOSFET device.


Gate charge characteristics

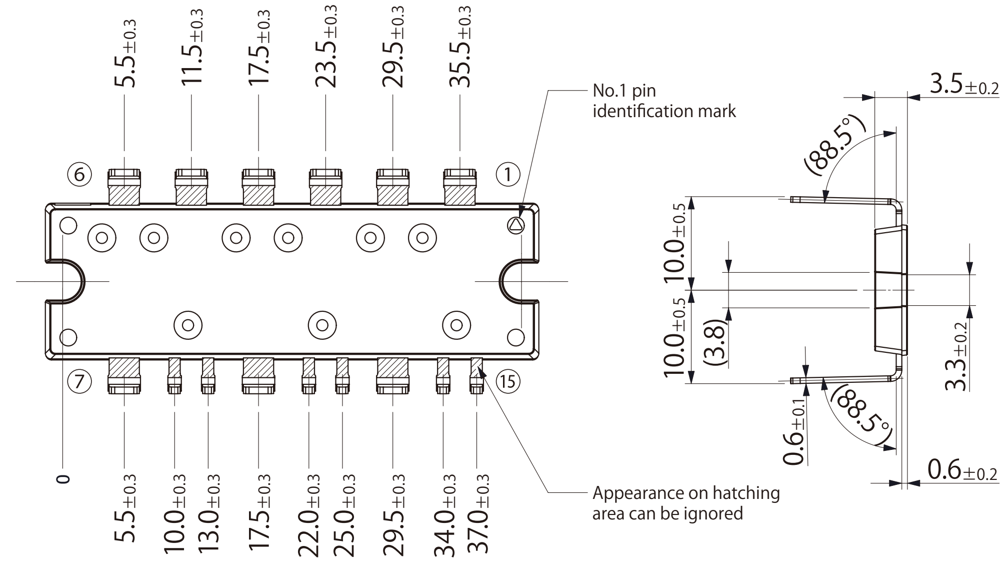

Single avalanche energy derating vs channel temperature

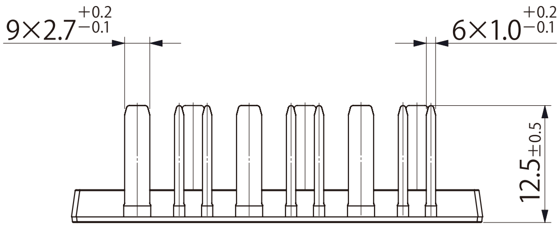
Package Outline-Dimensions

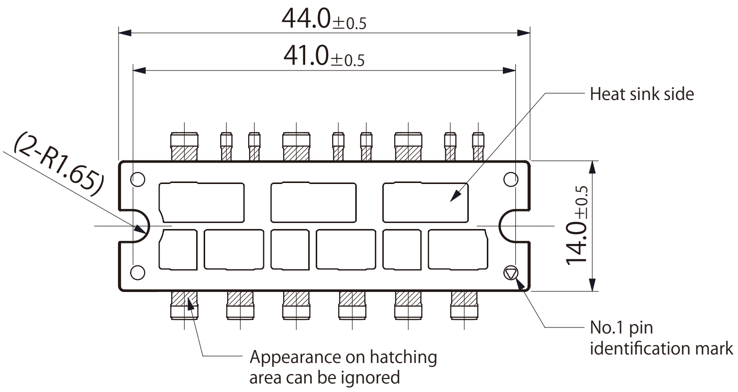
unit : mm

F5

JEDEC Code	–
JEITA Code	–
House Name	MG031







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