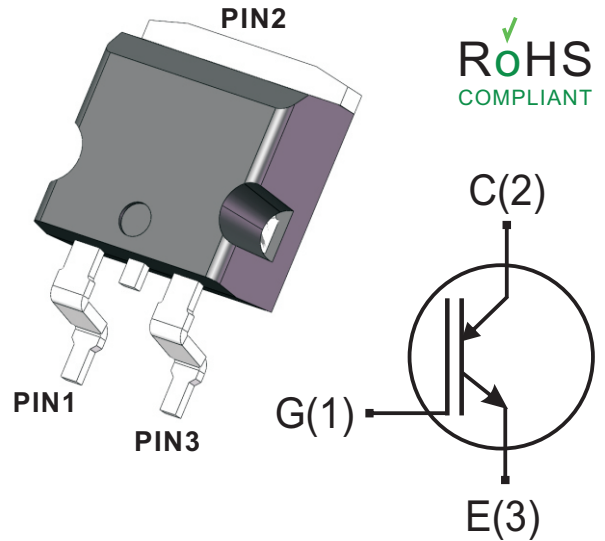




650V,40A,Field Stop , IGBT

TO-263-2L (*Prefix :G)

V _{CES}	650V
I _c (T _c 100°C)	40A
V _{CE(sat)} (typ)	1.5V



DESCRIPTION

- Positive temperature coefficient
- Low V_{CEsat}
- Low saturation voltage
- High switching frequency
- Easy paralleling
- Rohs Compliant

APPLICATIONS

- Motor drives
- Inverters
- Uninterruptible Power Supplies
- Converters

SYMBOL

ABSOLUTE MAXIMUM RATINGS (TA=25°C, unless otherwise specified)

PARAMETER	Symbols	RATINGS	Units
Collector-emitter voltage	V _{CES}	650	V
Gate-emitter voltage	V _{GES}	±25	V
Continuous Drain Current	I _c	T _c =25°C	80
		T _c =100°C	40
Pulsed Drain Current	I _{cm}	120	A
Power Dissipation (T _c = 25°C)	P _D	62.5	W
Operating junction temperature	T _j	-55 ~ +150	°C
storage temperature	T _{stg}	-55 ~ +150	°C

Thermal Resistance

PARAMETER	Symbols	RATINGS	Units
Thermal resistance IGBT junction – case.	R _{thJC}	2.0	°C/W
Thermal resistance, junction – ambient	R _{thJA}	50	°C/W



Electrical Characteristics of the IGBT (Tj= 25°C unless otherwise specified)

PARAMETER	Symbols	TEST CONDITIONS	Min	Typ	Max	Units
Static						
Collector-emitter breakdown voltage	$V_{(BR)CES}$	$V_{GE}=0V, I_{CE}=0.25mA$	650			V
Zero gate voltage collector current	I_{CES}	$V_{CE}=650V, V_{GE}=0V$			10	μA
Gate-emitter leakage current	I_{GES}	$V_{GE}=\pm 20V, V_{CE}=0V$			± 200	nA
Collector-emitter saturation voltage	$V_{CE(sat)}$	$V_{GE}=15V, I_C=40A$		1.5	1.9	V
Gate-emitter threshold voltage	$V_{GE(TH)}$	$V_{GE}=V_{CE}, I_C=1mA$	4.5	5.5	6.5	V
Dynamic						
Input Capacitance	C_{ies}	$V_{CE}=25V,$		2340		pF
Output Capacitance	C_{oes}	$V_{GE}=0V,$		172		pF
Reverse Transfer Capacitance	C_{res}	$f=1.0MHz$		38		pF
Gate resistance	R_G	$V_{DS}=0V, FREQ=1.00MHz$		2.6		Ω

Switching Characteristic, Inductive Load

PARAMETER	Symbols	TEST CONDITIONS	Min	Typ	Max	Units
Dynamic						
Turn-on Delay Time	$t_{d(on)}$	$V_{CC}= 400V, I_C=40A,$		30		ns
Rise Time	t_r	$V_{GE}=15V, R_g7.5\Omega$		20		ns
Turn-on Energy	E_{on}	$T_j=25^\circ C$		1.17		mJ
Turn-off Delay Time	$t_{d(off)}$			117		ns
Fall Time	t_f			16		ns
Turn-off Energy	E_{off}			0.54		mJ



Typical Characteristics

Fig.1 Typical output characteristic

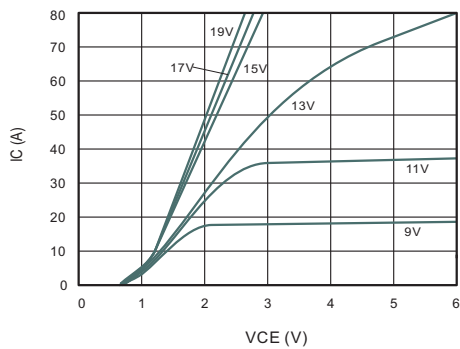


Fig.2 Capacitance Characteristics

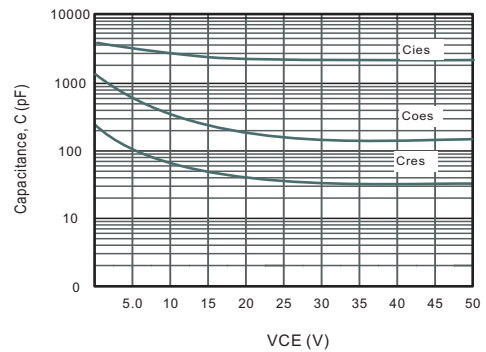


Fig.3 Power Dissipation

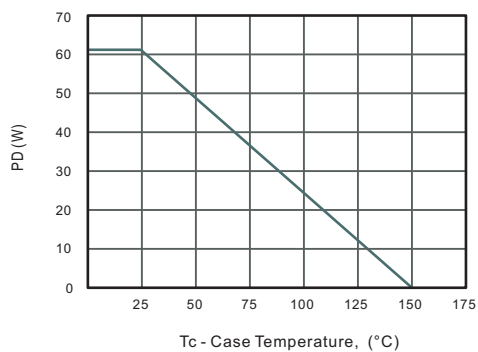


Fig.4 Collector Current Derating

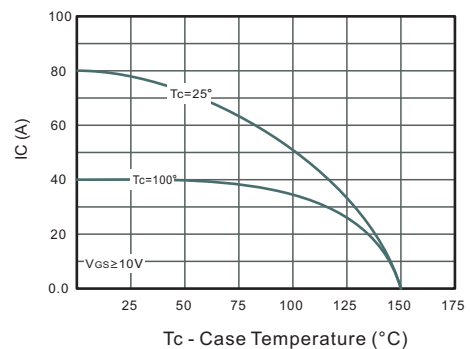


Fig.5 Typical VGE(th) as a function of TJ

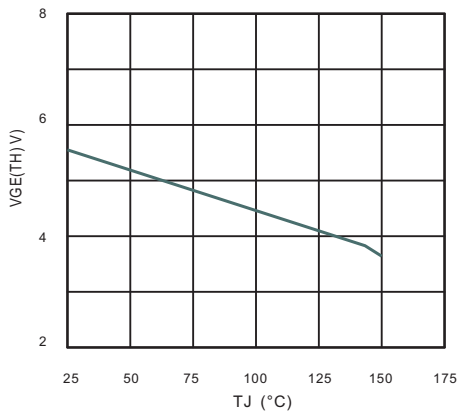


Fig.6 Safe Operating Area

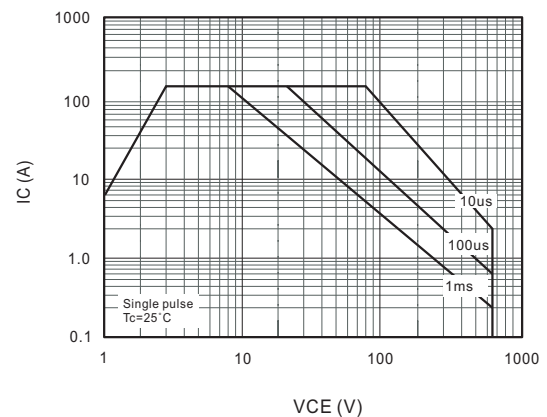
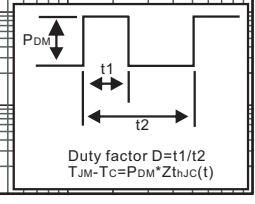
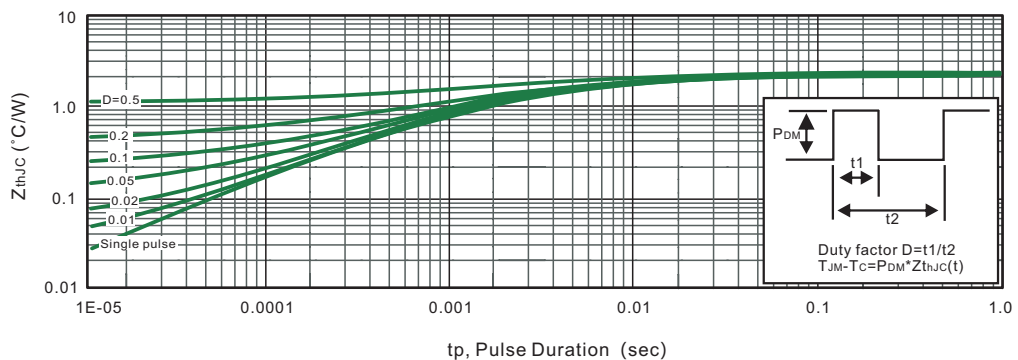


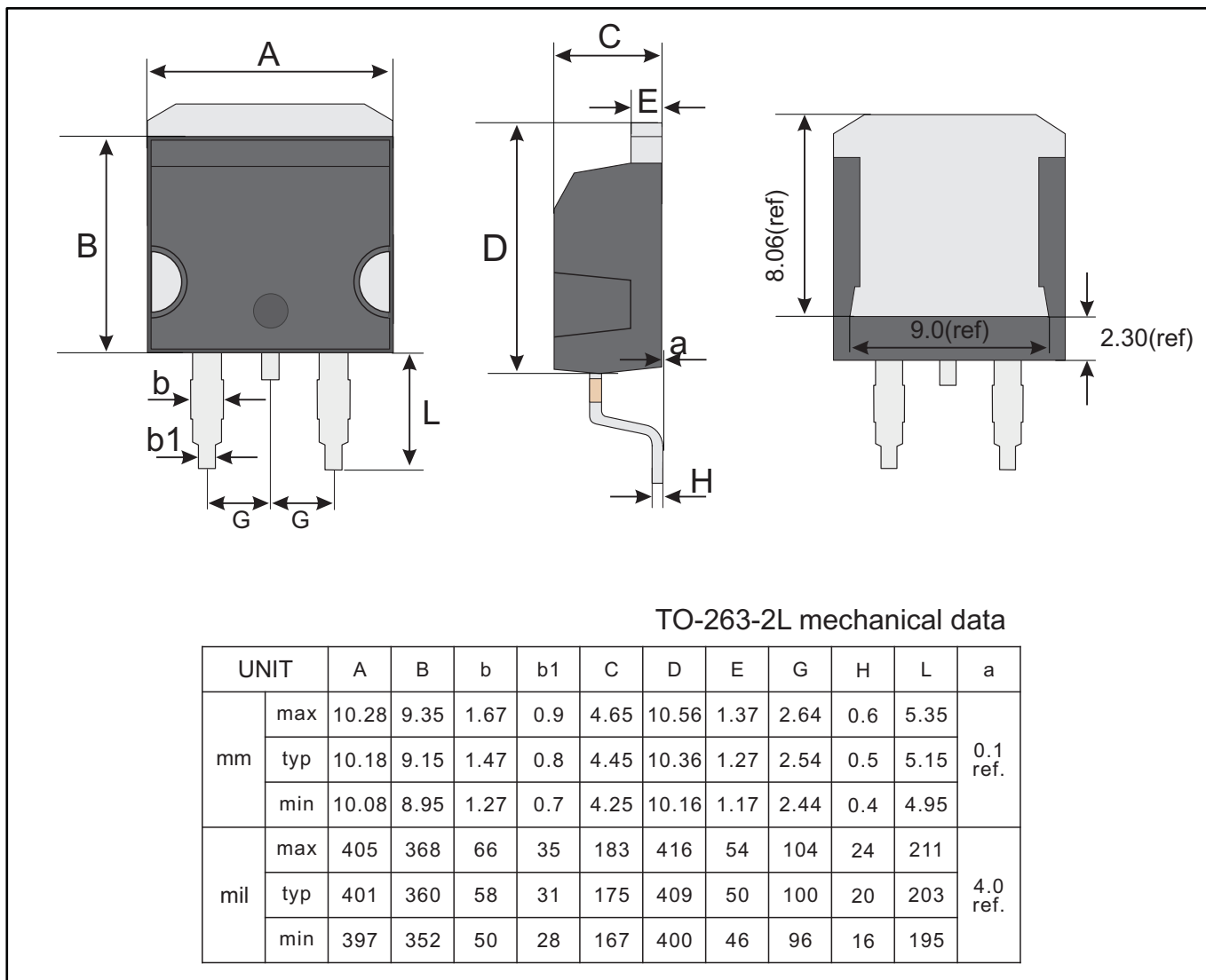
Fig.7 Max. Transient Thermal Impedance-IGBT





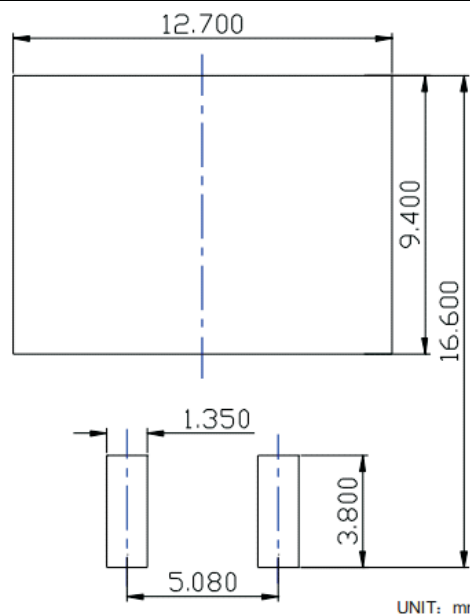
Package Outline
Plastic surface mounted package; 2 leads

TO-263-2L



Marking

Type number	Marking code
GG40N65ST	GG40N65ST



UNIT: mm

SUGGESTED SOLDER PAD LAYOUT



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