

■ Features

- High speed switching
- Voltage drive
- Low inductance module structure

■ Applications

- Inverter for Motor drive
- AC and DC Servo drive amplifier
- Uninterruptible power supply
- Industrial machines, such as Welding machines

■ Maximum ratings and characteristics

● Absolute maximum ratings (at $T_c=25^{\circ}\text{C}$ unless otherwise specified)

Item	Symbol	Conditions	Rating	Unit
Collector-Emitter voltage	V_{CES}	$I_c=1\text{mA}$	600	V
Gate-Emitter voltage	V_{GES}		± 20	V
Collector current	Continuous	I_c Duty=100%	100	A
	1ms	I_c pulse	200	A
	Continuous	$-I_c$ Duty=50%	100	A
	1ms	$-I_c$ pulse	200	A
Max. power dissipation	P_c	1 device	310	W
Operating temperature	T_j		+150	$^{\circ}\text{C}$
Storage temperature	T_{stg}		-40 to +125	$^{\circ}\text{C}$
Isolation voltage	V_{is}	AC:1min.	AC 2500 (1min.)	V
Screw torque	Mounting *1		3.5	N·m
	Terminals *1		3.5	N·m

*1 : All terminals should be connected together when isolation test will be done.

*2 : Recommendable value : 2.5 to 3.5 N·m(M5)

● Electrical characteristics (at $T_j=25^{\circ}\text{C}$ unless otherwise specified)

Item	Symbol	Characteristics			Conditions	Unit
		Min.	Typ.	Max.		
Zero gate voltage collector current	I_{CES}	—	—	1.0	$V_{GE}=0\text{V}$, $V_{CE}=600\text{V}$	mA
Gate-Emitter leakage current	I_{GES}	—	—	200	$V_{CE}=0\text{V}$, $V_{GE}=\pm 20\text{V}$	nA
Gate-Emitter threshold voltage	$V_{GE(th)}$	6.2	6.7	7.7	$V_{CE}=20\text{V}$, $I_c=100\text{mA}$	V
Collector-Emitter saturation voltage	$V_{CE(sat)}$	—	1.8	—	Chip	$V_{GE}=15\text{V}$, $I_c=100\text{A}$
		—	2.0	2.4	Terminal	
Input capacitance	C_{ies}	—	8500	—	$V_{GE}=0\text{V}$	pF
Output capacitance	C_{oes}	—	1500	—	$V_{CE}=10\text{V}$	
Reverse transfer capacitance	C_{res}	—	1300	—	$f=1\text{MHz}$	
Turn-on time	t_{on}	—	0.4	1.2	$V_{CC}=300\text{V}$	μs
	t_r	—	0.25	0.6	$I_c=100\text{A}$	
	$t_{r(j)}$	—	0.1	—	$V_{GE}=\pm 15\text{V}$	
Turn-off time	t_{off}	—	0.4	1.2	$R_G=33\text{ohm}$	
	t_f	—	0.04	0.45		
Forward on voltage	V_F	—	1.7	—	Chip	$I_F=100\text{A}$
		—	2.0	2.5	Terminal	
Reverse recovery time	t_{rr}	—	—	0.3	$I_F=100\text{A}$	μs
Allowable avalanche energy during short circuit cutting off (Non-repetitive)	PAV	55	—	—	$I_c>200\text{A}$, $T_j=125^{\circ}\text{C}$	mJ

● Thermal resistance characteristics

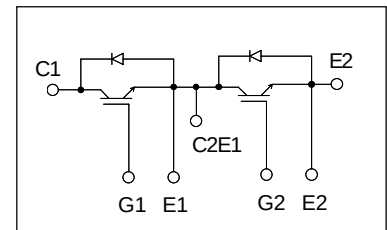
Item	Symbol	Characteristics			Conditions	Unit
		Min.	Typ.	Max.		
Thermal resistance	$R_{th(j-c)}$	—	—	0.400	IGBT	$^{\circ}\text{C/W}$
	$R_{th(j-c)}$	—	—	1.02	FWD	$^{\circ}\text{C/W}$
Contact Thermal resistance	$R_{th(c-f)*2}$	—	0.05	—	With thermal compound	$^{\circ}\text{C/W}$

*2 : This is the value which is defined mounting on the additional cooling fin with thermal compound

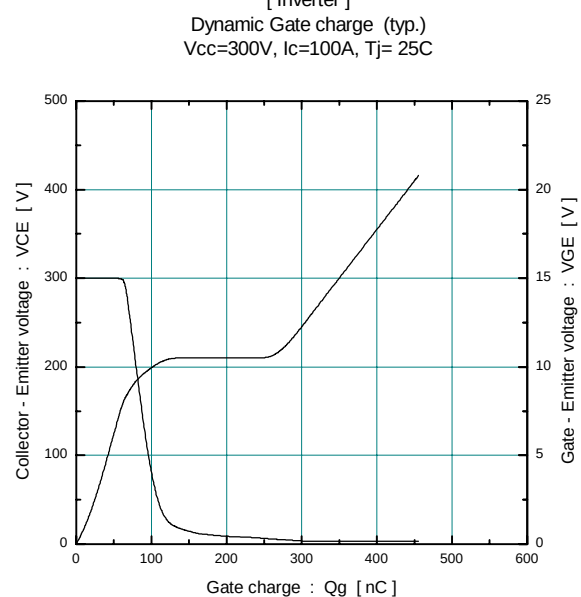
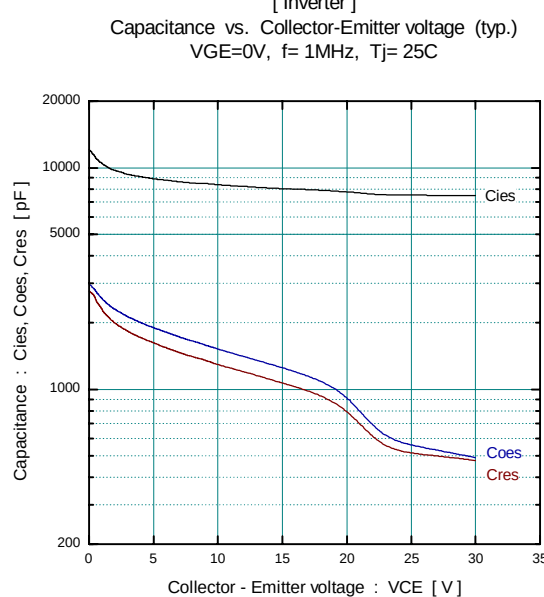
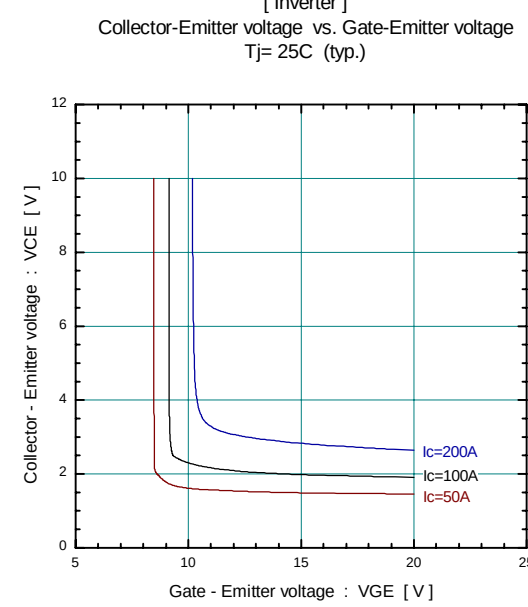
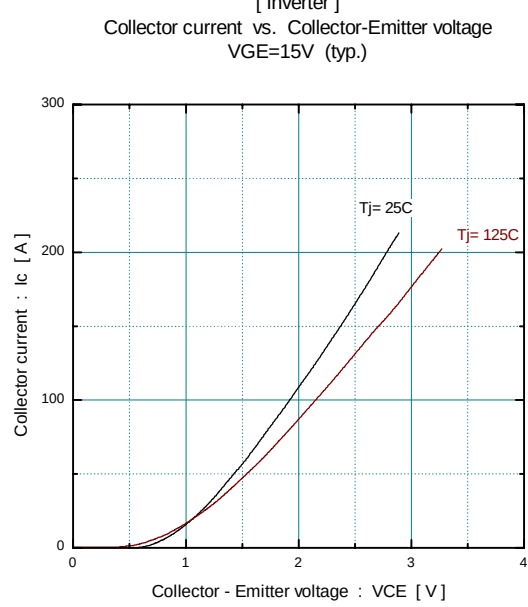
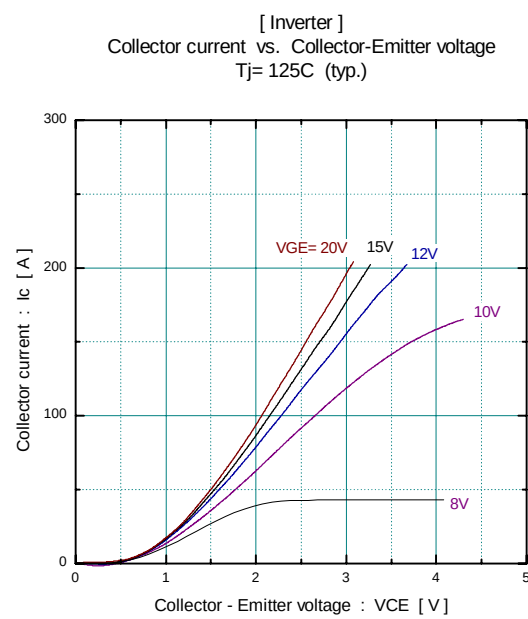
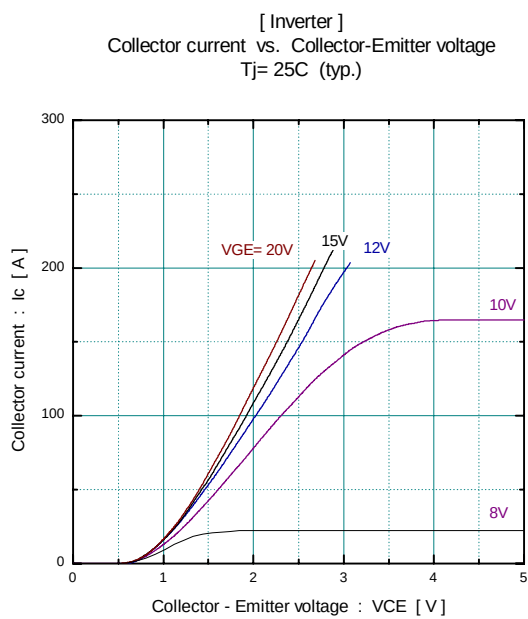
IGBT Module T-Series

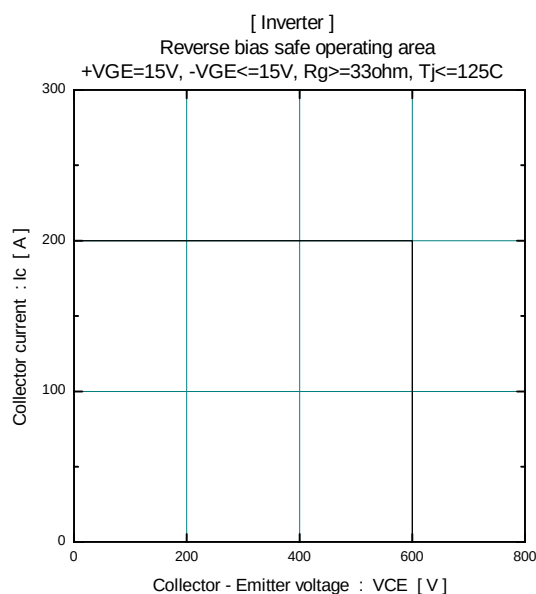
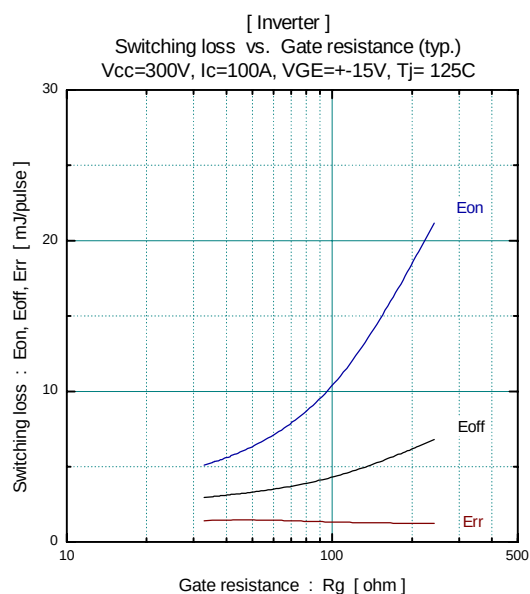
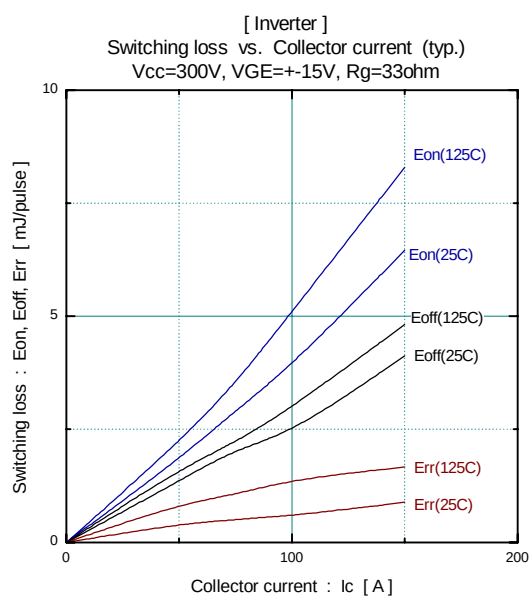
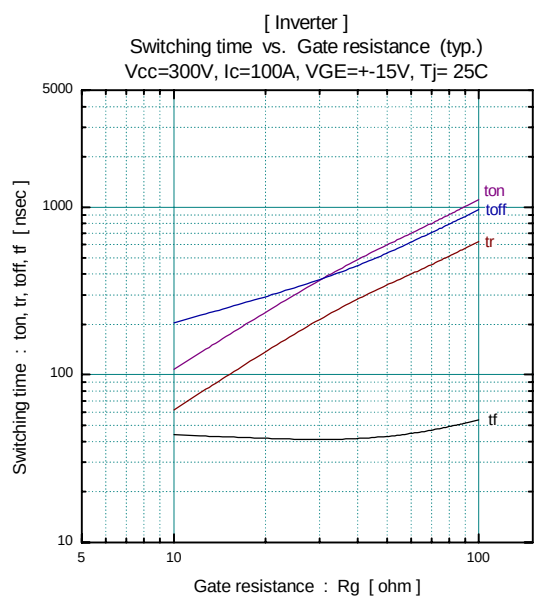
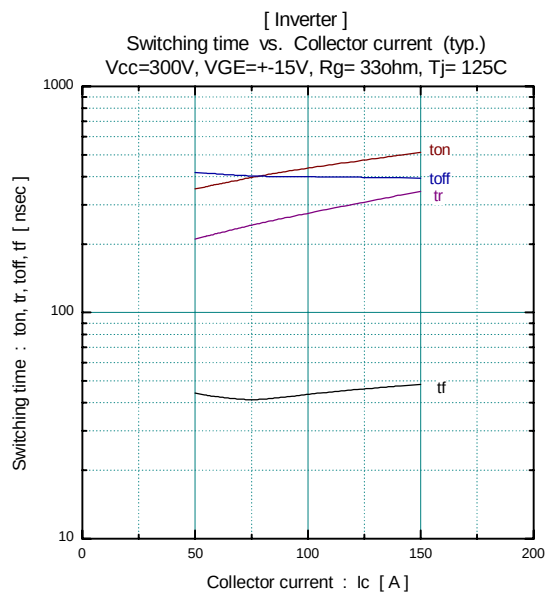
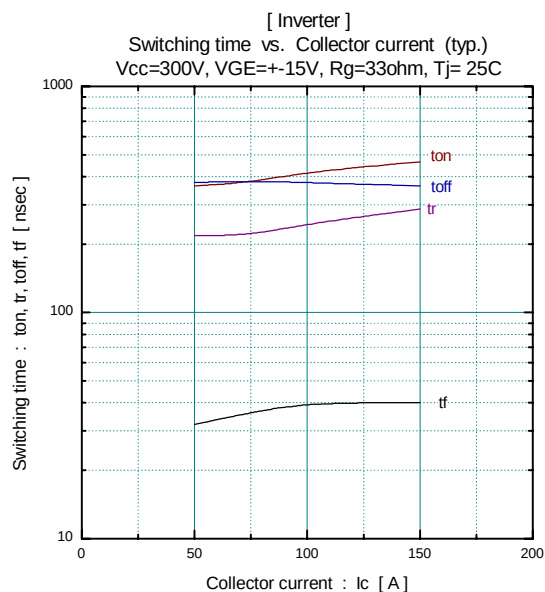
600V / 100A 2 in one-package

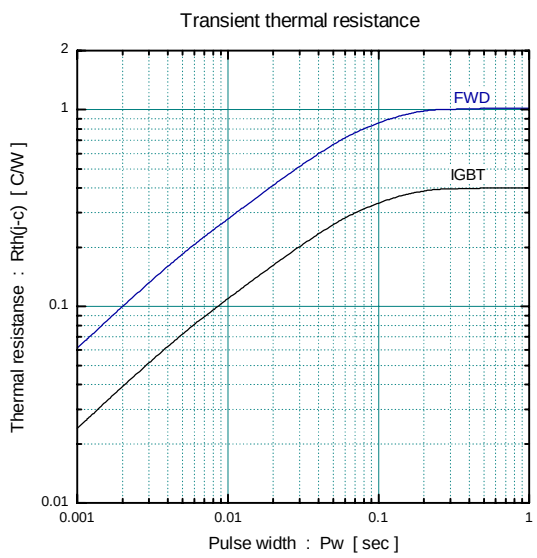
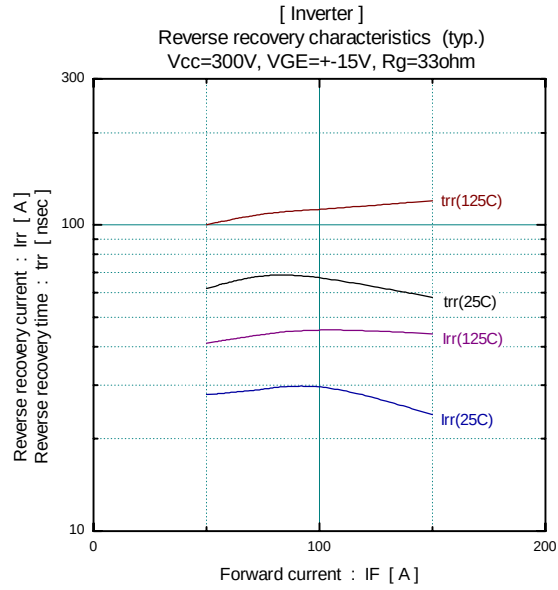
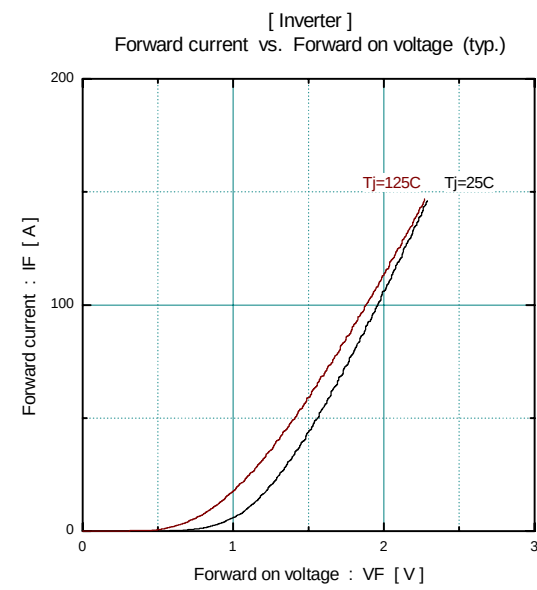
Equivalent Circuit Schematic



Characteristics (Representative)







■ Outline Drawings, mm

