

IGBT Module T-Series

600V / 150A 2 in one-package

■ 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 Tc=25°C unless otherwise specified)

Item	Symbol	Conditions	Rating	Unit	
Collector-Emitter voltage	V _{CES}	I _c =1mA	600	V	
Gate-Emitter voltage	V _{GES}		±20	V	
Collector current	Continuous	I _c	Duty=100%	150	A
	1ms	I _c pulse	1ms	300	A
	Continuous	-I _c	Duty=75%	150	A
	1ms	-I _c pulse	1ms	300	A
Max. power dissipation	P _c	1 device	430	W	
Operating temperature	T _j		+150	°C	
Storage temperature	T _{stg}		-40 to +125	°C	
Isolation voltage (*1)	V _{is}	AC:1min.	AC 2500 (1min.)	V	
Screw torque	Mounting *2		3.5	N·m	
	Terminals *2		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°C unless otherwise specified)

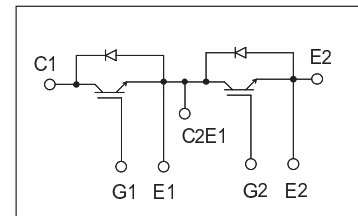
Item	Symbol	Characteristics			Conditions	Unit	
		Min.	Typ.	Max.			
Zero gate voltage collector current	I _{CES}	-	-	1.0	V _{GE} =0V, V _{CE} =600V	mA	
Gate-Emitter leakage current	I _{GES}	-	-	200	V _{CE} =0V, V _{GE} =±20V	nA	
Gate-Emitter threshold voltage	V _{GE(th)}	6.2	6.7	7.7	V _{CE} =20V, I _c =150mA	V	
Collector-Emitter saturation voltage	V _{CE(sat)}	-	1.85	-	Chip	V _{GE} =15V, I _c =150A	V
		-	2.1	2.4	Terminal		
Input capacitance	C _{ies}	-	11500	-	V _{GE} =0V	pF	
Output capacitance	C _{oes}	-	2050	-	V _{CE} =10V		
Reverse transfer capacitance	C _{res}	-	1700	-	f=1MHz		
Turn-on time	t _{on}	-	0.4	1.2	V _{CC} =300V	μs	
	t _r	-	0.2	0.6	I _c =150A		
	t _{r(j)}	-	0.1	-	V _{GE} =±15V		
Turn-off time	t _{off}	-	0.55	1.2	R _G =24 ohm	μs	
	t _f	-	0.05	0.45			
Forward on voltage	V _F	-	1.8	-	Chip	I _F =150A	V
		-	2.1	2.5	Terminal		
Reverse recovery time	t _{rr}	-	-	0.3	I _F =150A	μs	
Allowable avalanche energy during short circuit cutting off (Non-repetitive)	PAV	85	-	-	I _c >300A, T _j =125°C	mJ	

● Thermal resistance characteristics

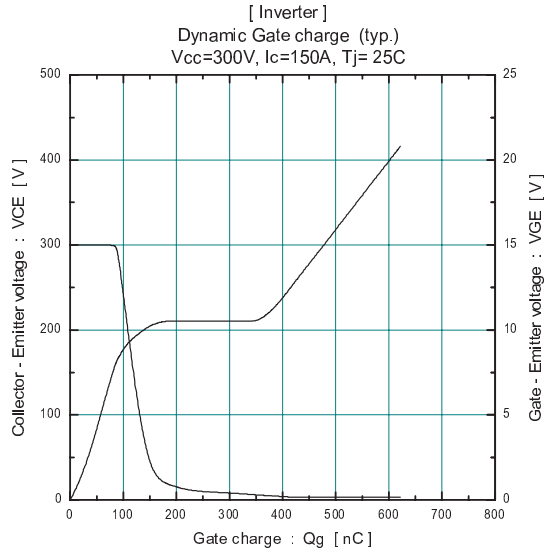
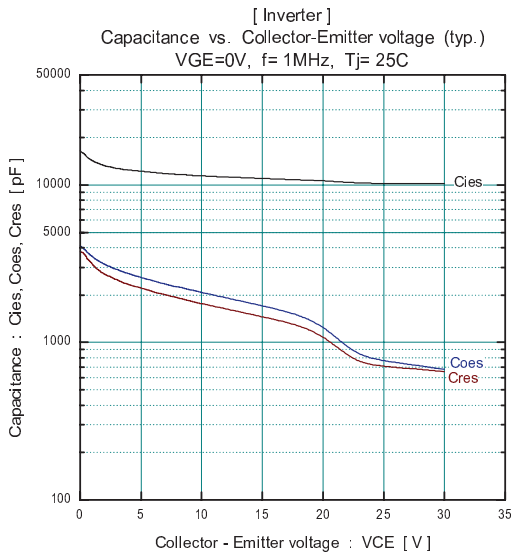
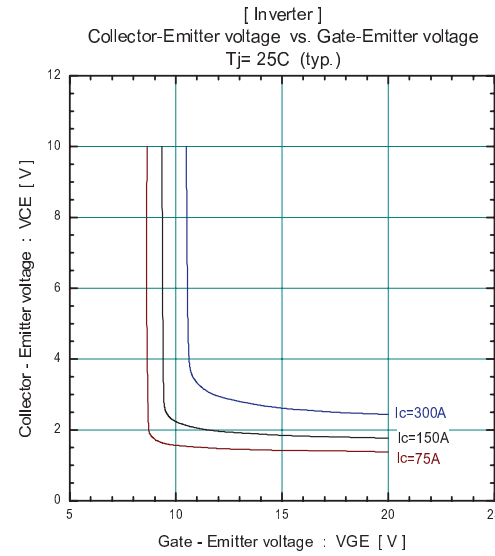
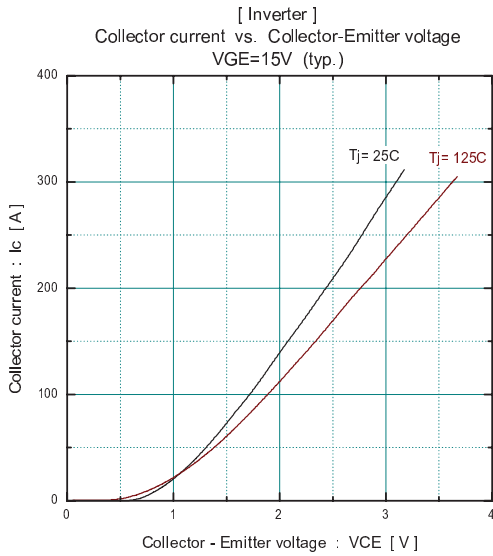
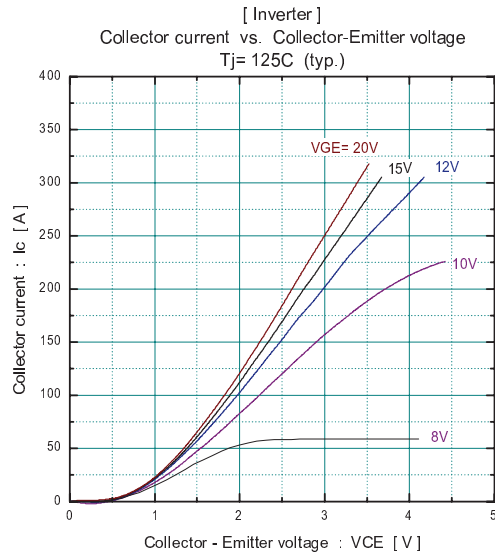
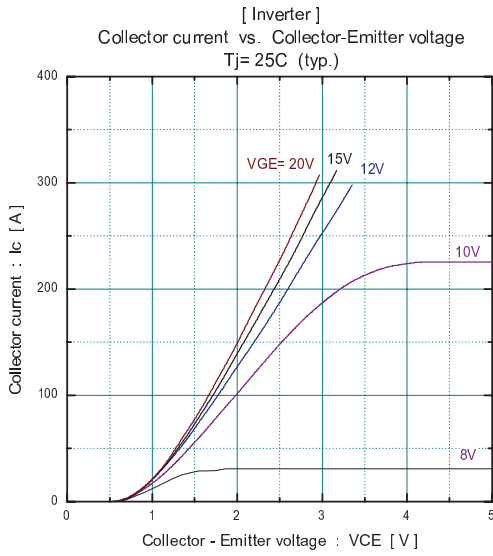
Item	Symbol	Characteristics			Conditions	Unit
		Min.	Typ.	Max.		
Thermal resistance	R _{th(j-c)}	-	-	0.290	IGBT	°C/W
	R _{th(j-c)}	-	-	0.64	FWD	°C/W
Contact Thermal resistance	R _{th(c-f)} *2	-	0.05	-	With thermal compound	°C/W

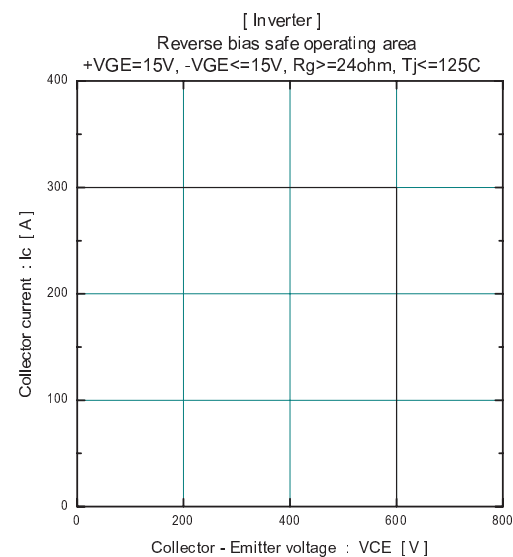
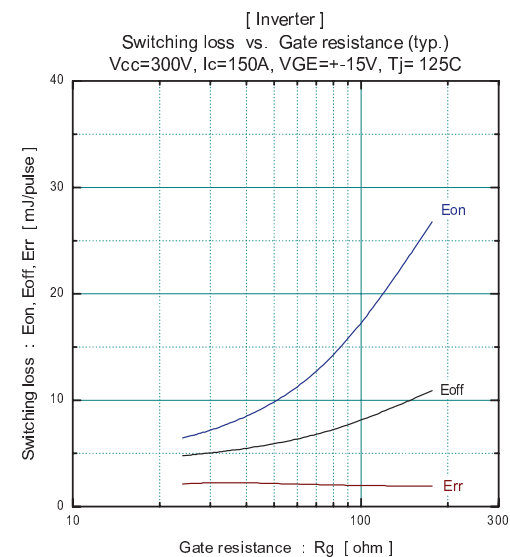
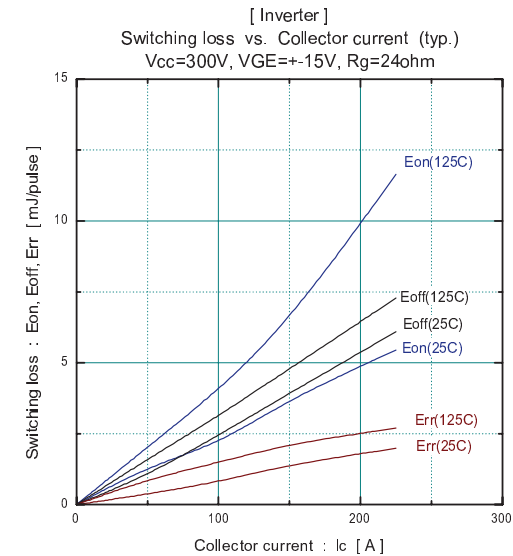
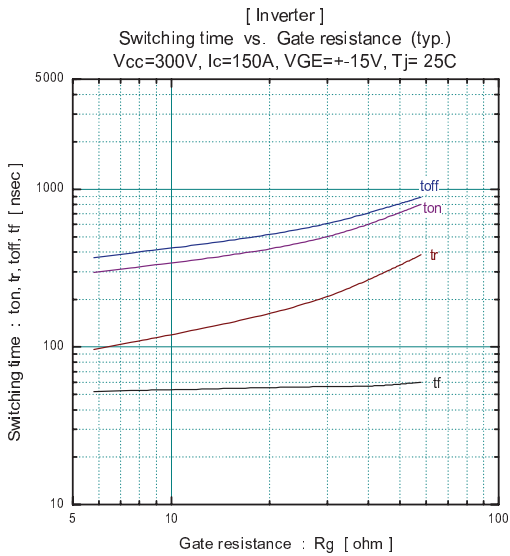
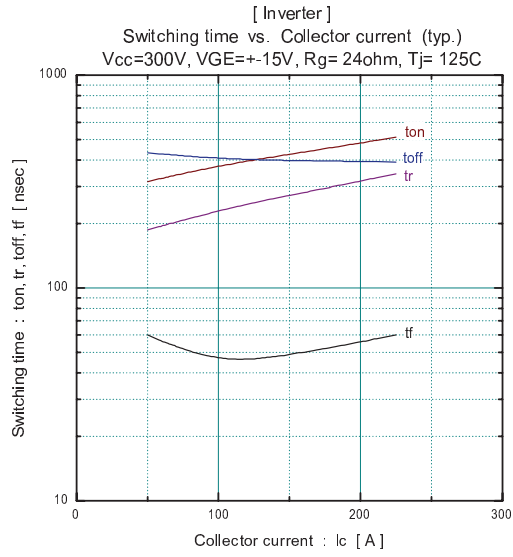
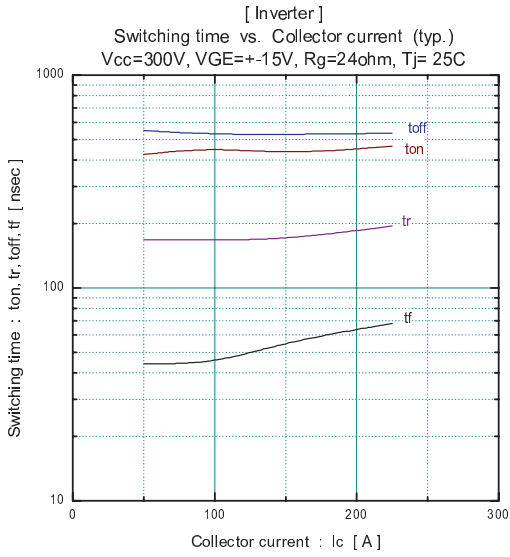
*2: This is the value which is defined mounting on the additional cooling fin with thermal compound

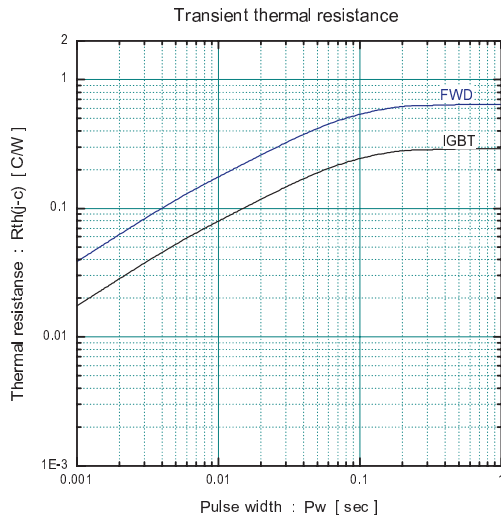
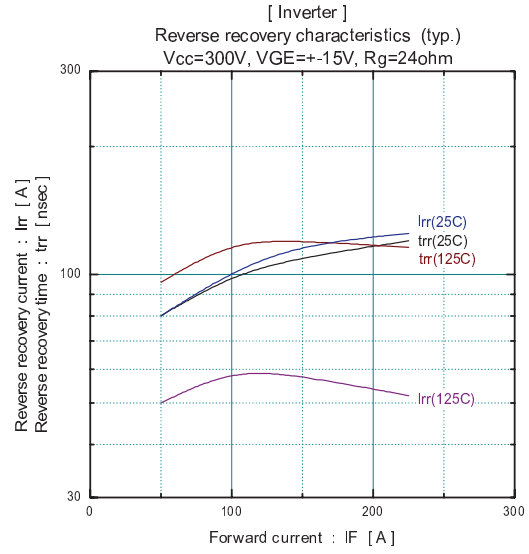
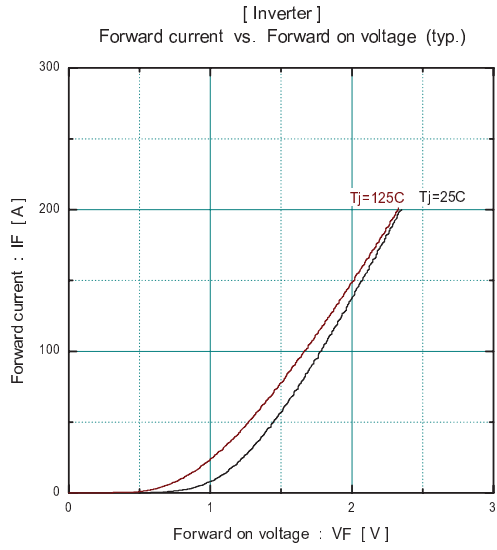
■ Equivalent Circuit Schematic



■ Characteristics (Representative)







■ Outline Drawings, mm

