

Diode Module with Brake

Diode:1600V / 75A, IGBT:1400A/50A

■ Features

- Compact Package
- P.C. Board Mount Module
- Converter Diode Bridge Dynamic Brake Circuit

■ Applications

- Inverter for Motor Drive
- AC and DC Servo Drive Amplifier
- Uninterruptible Power Supply

■ Maximum ratings and characteristics

● Absolute maximum ratings (Tc=25°C unless without specified)

Item	Symbol	Condition		Rating	Unit	
Converter	Repetitive peak reverse voltage	V _{RRM}		1600	V	
	Non-repetitive peak reverse voltage	V _{RSM}		1760	V	
	Average output current	I _o	50Hz/60Hz sine wave Tc=115°C	75	A	
	One cycle surge current	I _{FSM}	From rated load	600	A	
	Peak power	P _t	From rated load	1440	A ² s	
	Operation junction temperature	T _j		-40 to +125	°C	
Brake	Collector-Emitter voltage	V _{GES}		1400	V	
	Gate-Emitter voltage	V _{GES}		±20	V	
	Collector current	I _c	DC	Tc=25°C	50	A
				Tc=75°C	35	
		I _{cP}	1ms	Tc=25°C	100	A
				Tc=75°C	70	
	Collector power dissipation	P _c	1 device		240	W
	Repetitive peak reverse voltage	V _{RRM}		1400	V	
	Operation junction temperature	T _j		+150	°C	
	Storage junction temperature	T _{stg}	AC : 1 minute		-40 to +125	°C
Isolation voltage	V _{iso}	M5 screw		3000	V	
Mounting screw torque				2.0 to 2.5	N·m	

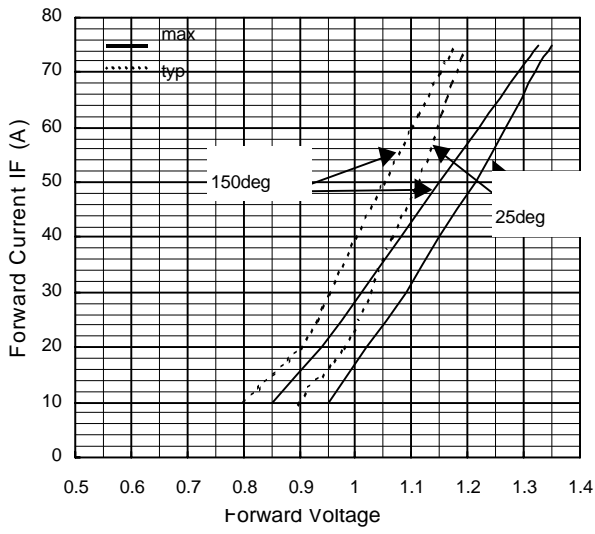
● Electrical characteristics (Tj=25°C unless otherwise specified)

Item	Symbol	Condition	Min.	Typ.	Max.	Unit	
Co.	Forward voltage	V _{FM}			1.35	V	
	Reverse current	I _{RRM}			15	mA	
	Zero gate voltage Collector current	I _{CES}	V _{GE} =0V. V _{CE} =1400V			1.0	mA
	Gate-Emitter leakage current	I _{GES}	V _{CE} =0V. V _{GE} =±20V			200	nA
Brake	Collector-Emitter saturation voltage	V _{CE(sat)}	V _{GE} =15V. I _c =35A		2.4	2.8	V
	Turn-on time	ton	V _{CC} =800V		0.35	1.2	μs
		tr	I _c =35A		0.25	0.6	
	Turn-off time	toff	V _{GE} =±15V		0.45	1.0	
		tf	R _G =33ohm		0.08	0.3	
	Reverse current	I _{RRM}				1.0	mA

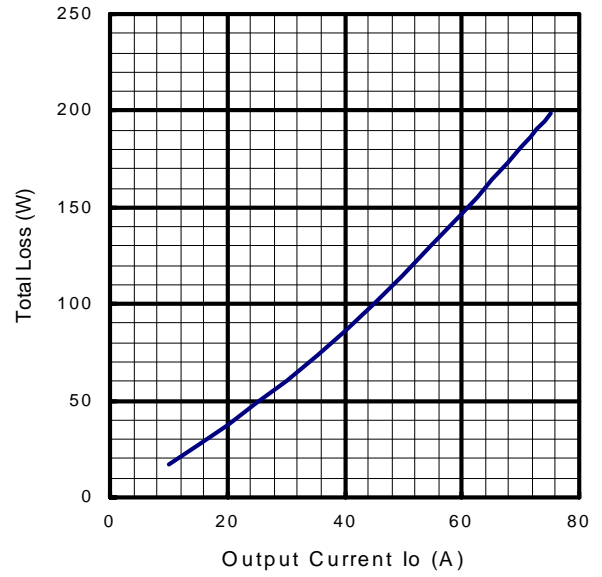
● Thermal characteristics

Item	Symbol	Condition		Min.	Typ.	Max.	Unit
Thermal resistance	R _{th(j-c)}	Converter	Per total loss			0.16	°C/W
			Per each device			0.96	
		Brake IGBT (1 device)			0.70		
Thermal Resistance(Case to fine)	R _{th(c-f)}	with thermal compound				0.08	°C/W

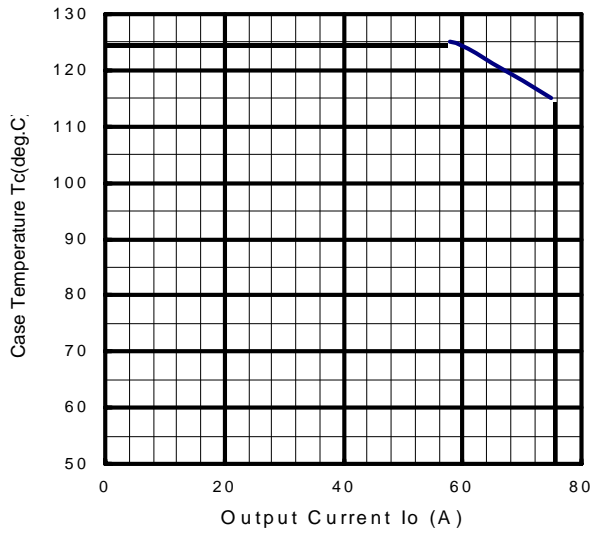
Forward Characteristics



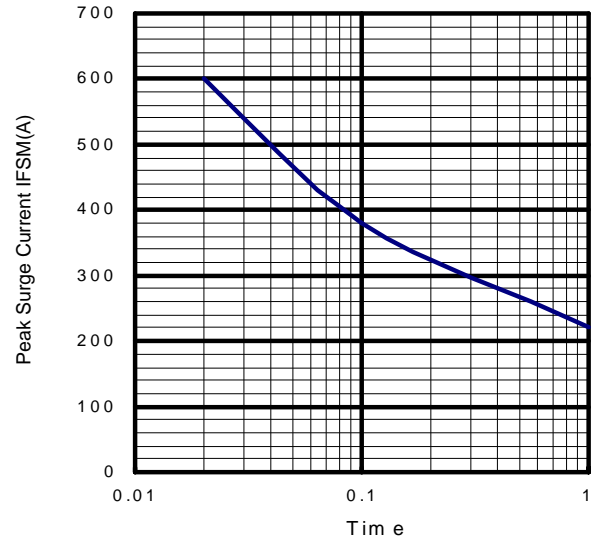
Output Current - Total Loss



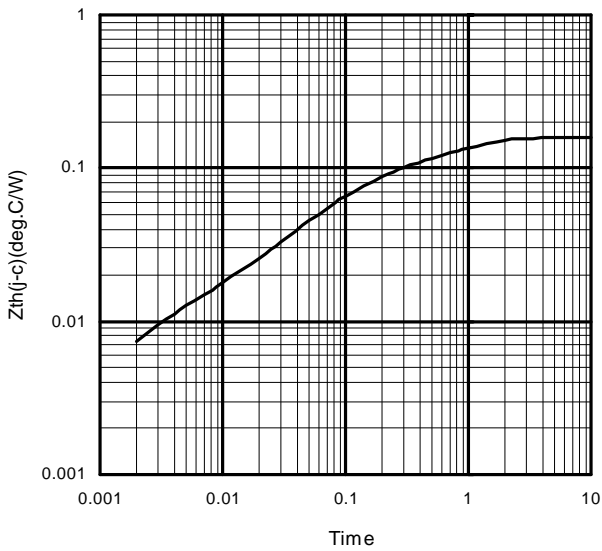
Output Current - Case Temperature



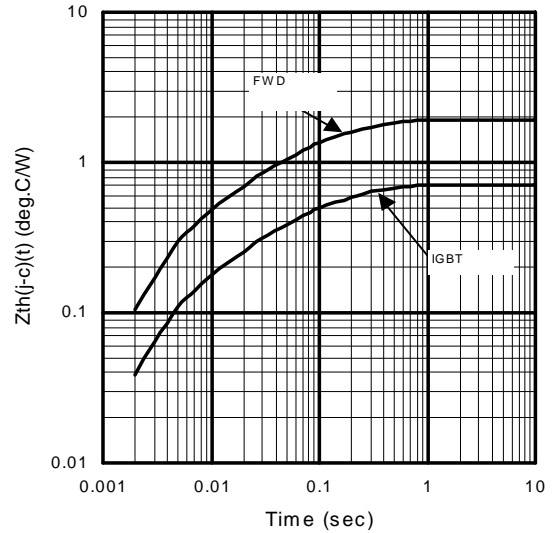
Surge Current

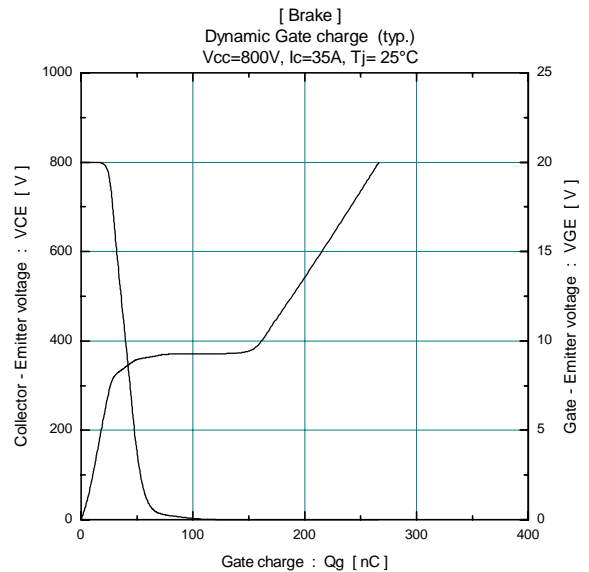
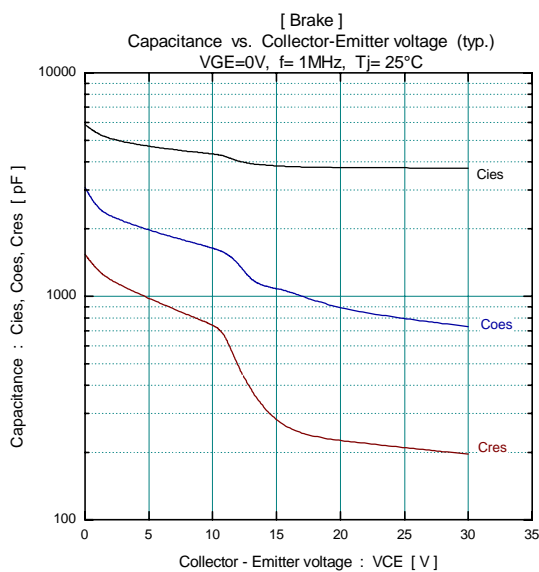
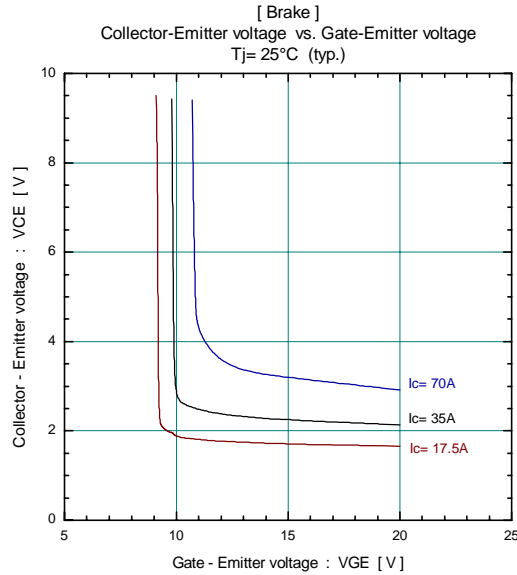
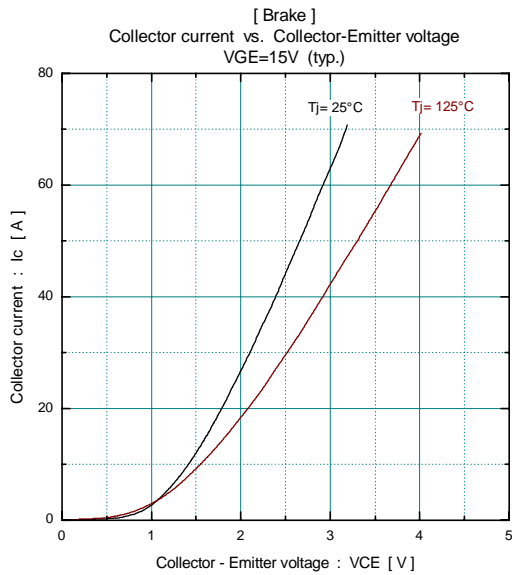
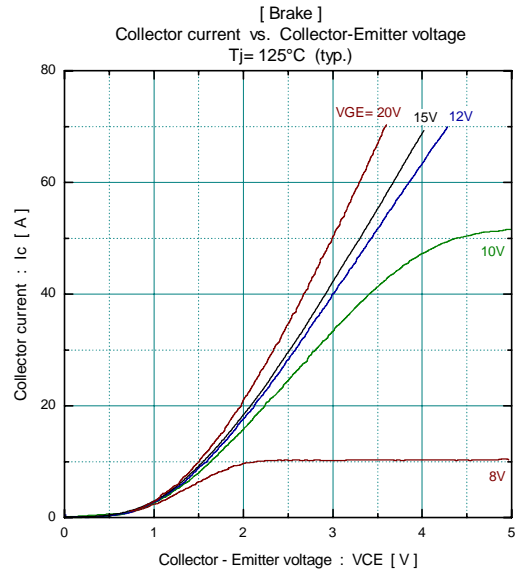
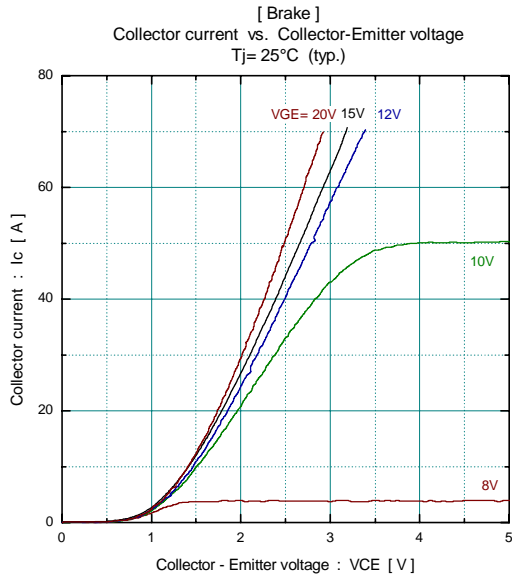


Transient Thermal Impedance

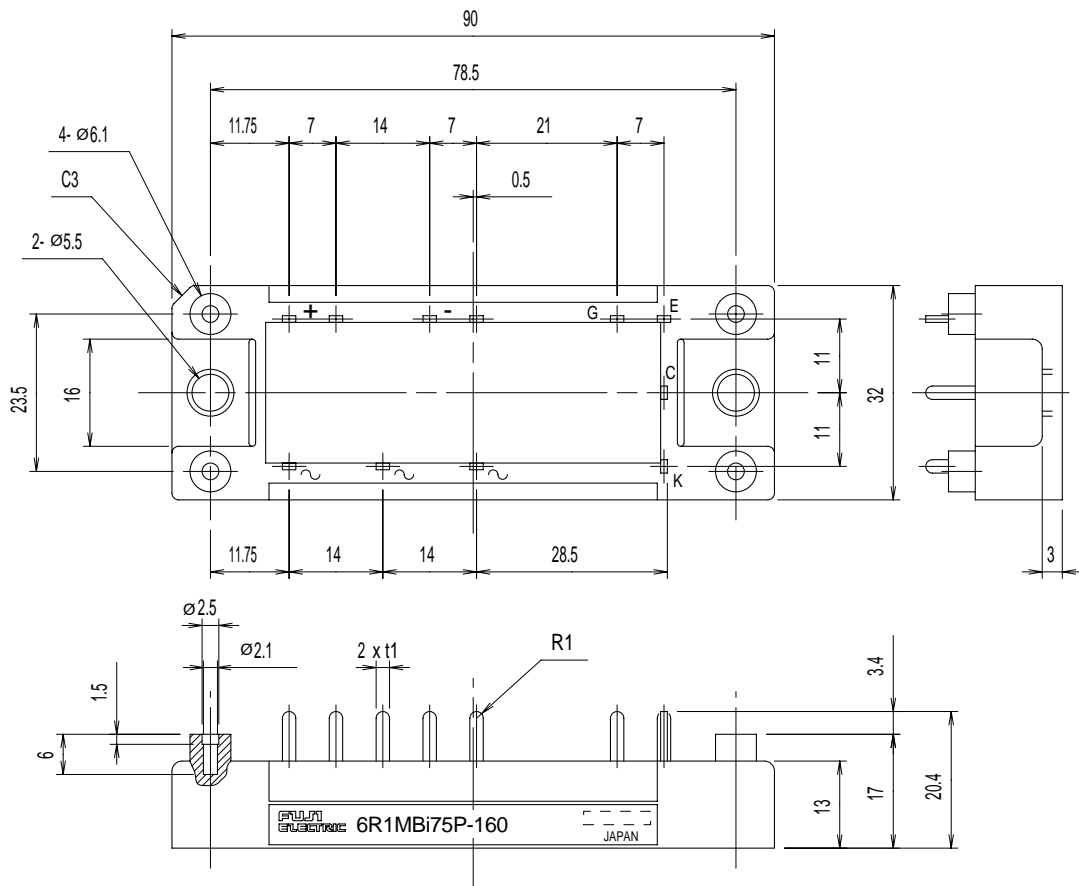


[Brake] Transient Thermal Impedance





■ Outline Drawings, mm



■ Equivalent Circuit Schematic

