

6R1MBi75P-160

Diode Module

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 | | |

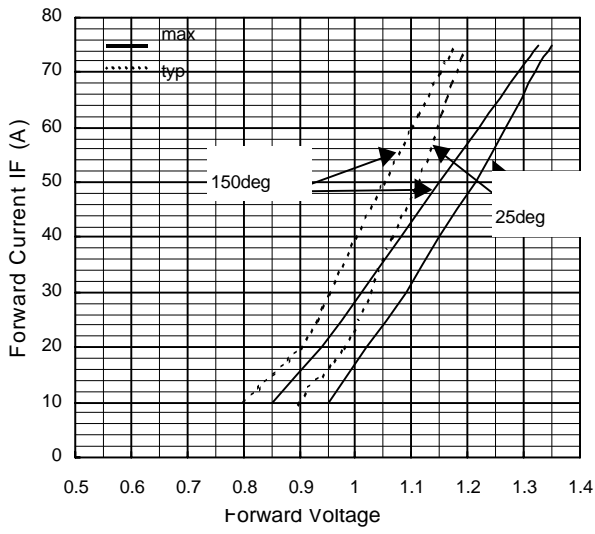
● Electrical characteristics (Tj=25°C unless otherwise specified)

| 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 |

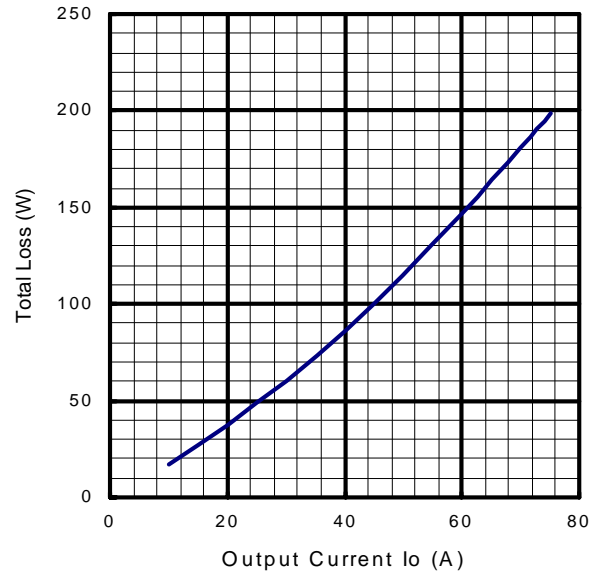
● Thermal characteristics

| 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 |

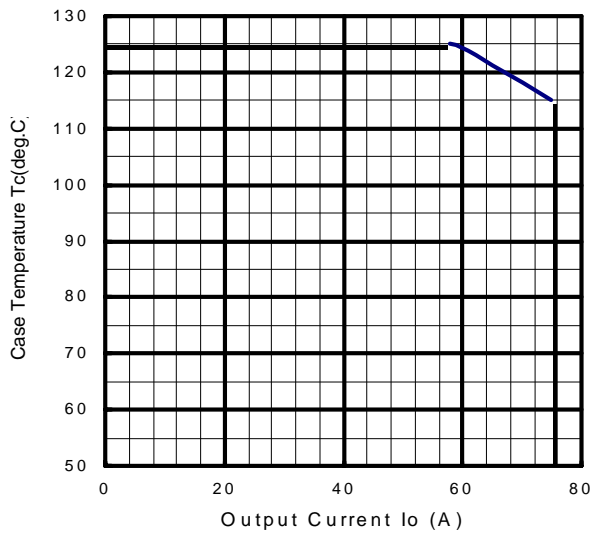
Forward Characteristics



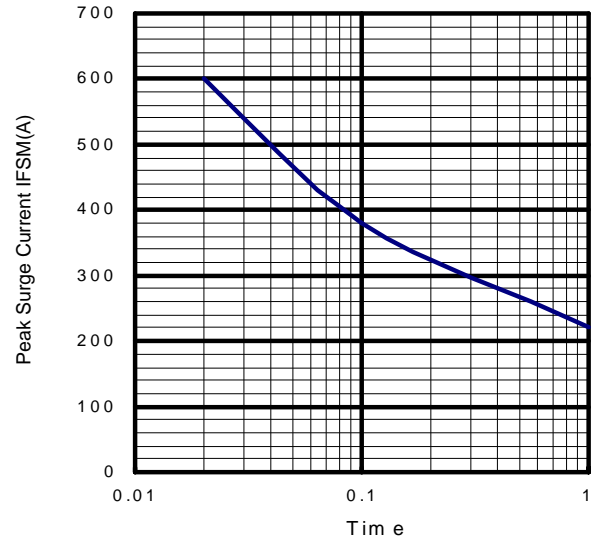
Output Current - Total Loss



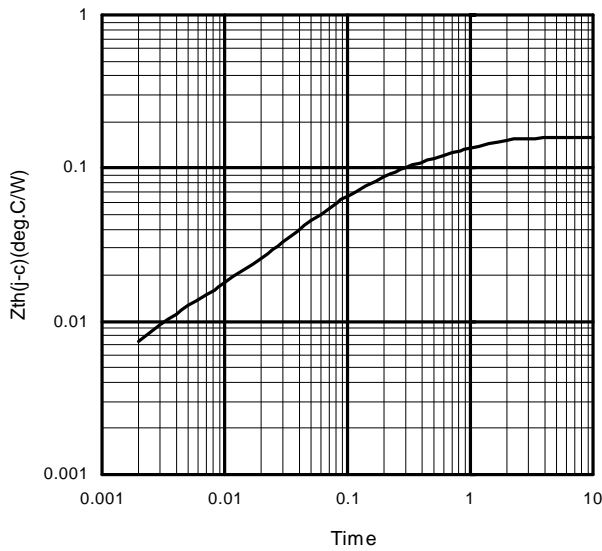
Output Current - Case Temperature



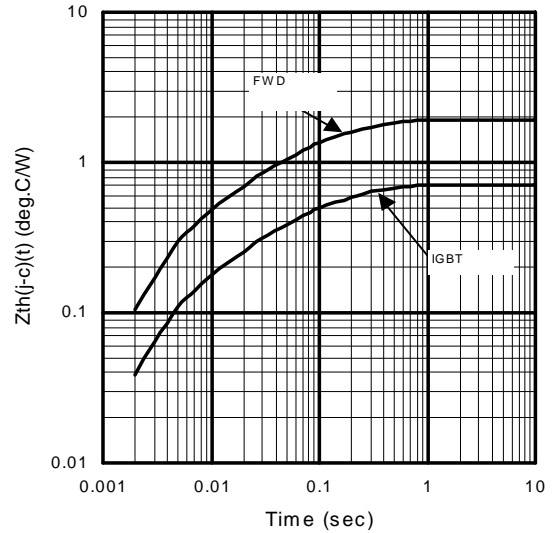
Surge Current

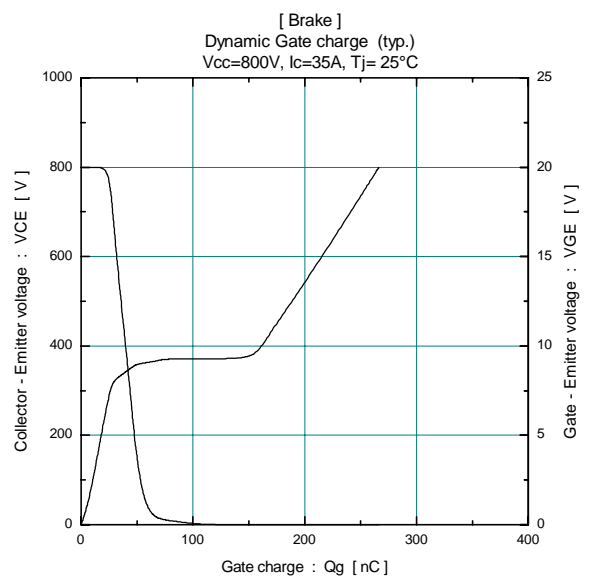
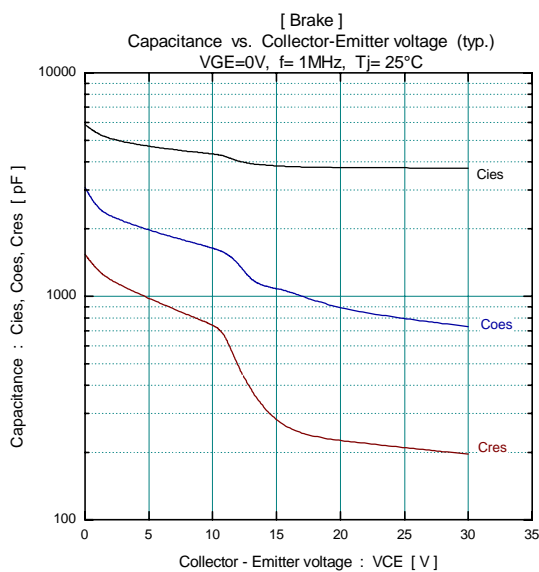
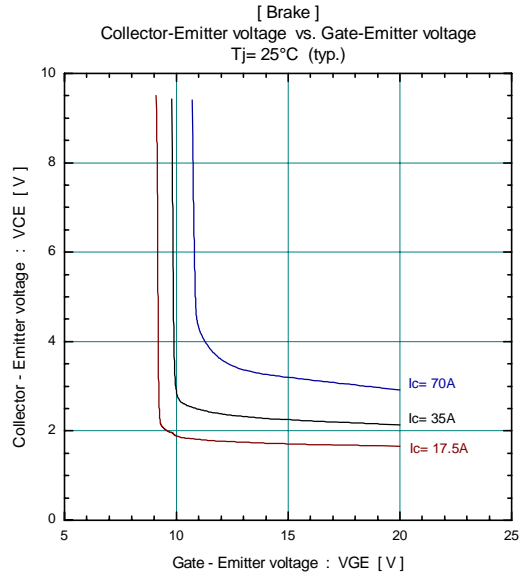
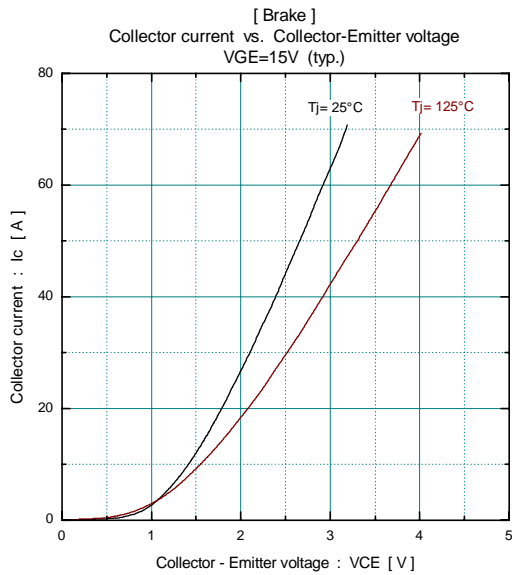
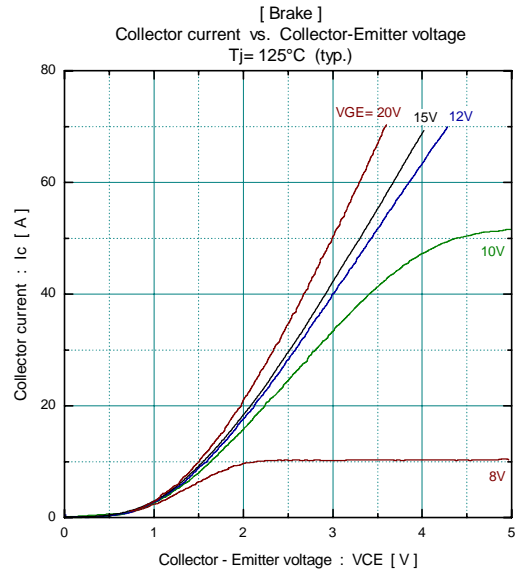
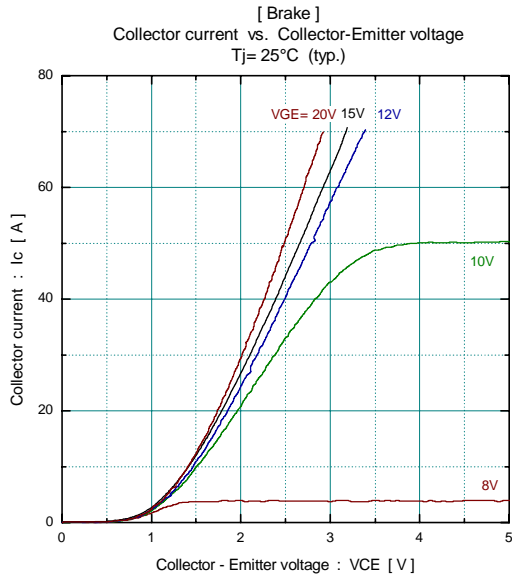


Transient Thermal Impedance

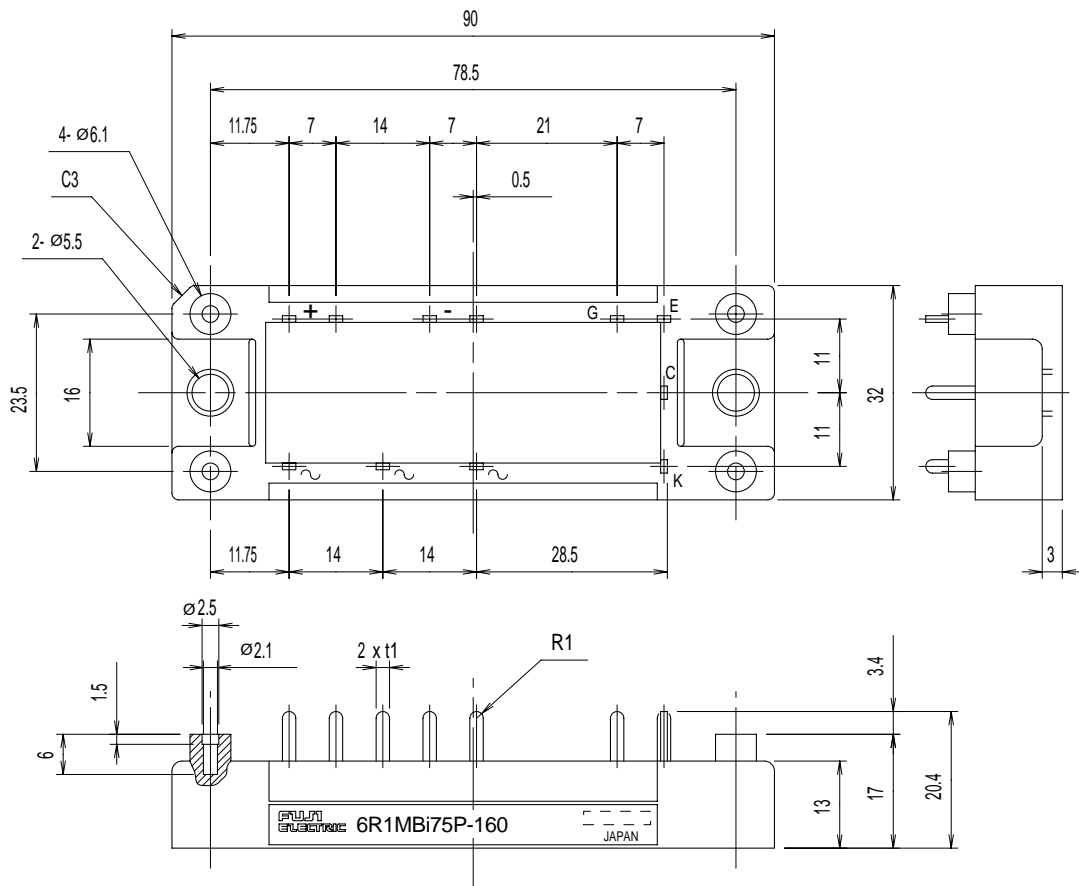


[Brake] Transient Thermal Impedance





■ Outline Drawings, mm



■ Equivalent Circuit Schematic

