

600V / 20A 6 in one-package

■ Features

- Compact Single in -line package

■ Applications

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



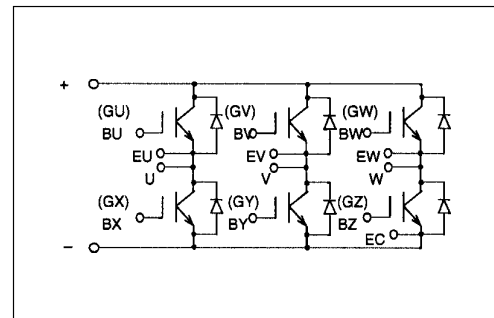
■ Maximum ratings and characteristics

● Absolute maximum ratings (at Tc=25°C unless otherwise specified)

Item	Symbol	Rating	Unit
Collector-Emitter voltage	V _{CEs}	600	V
Gate-Emitter voltage	V _{GES}	±20	V
Collector current	Continuous	I _c	20 A
	1ms	I _c pulse	40 A
		-I _c	20 A
	1ms	-I _c pulse	40 A
Max. power dissipation	P _c	70	W
Operating temperature	T _j	+150	°C
Storage temperature	T _{stg}	-40 to +125	°C
Isolation voltage	V _{is}	AC 2000 (1min.)	V
Screw torque	Mounting *1	1.7	N·m

*1 : Recommendable value : 1.3 to 1.7 N·m (M4)

■ Equivalent Circuit Schematic



● Electrical characteristics (at Tj=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}	–	–	0.1	V _{CE} =0V, V _{GE} =±20V	µA
Gate-Emitter threshold voltage	V _{GE(th)}	5.5	–	8.5	V _{CE} =20V, I _c =20mA	V
Collector-Emitter saturation voltage	V _{CE(sat)}	–	–	2.8	V _{GE} =15V, I _c =20A	V
Input capacitance	C _{ies}	–	1300	–	V _{GE} =0V	pF
Output capacitance	C _{oes}	–	300	–	V _{CE} =10V	
Reverse transfer capacitance	C _{res}	–	72	–	f=1MHz	
Turn-on time	t _{on}	–	–	1.2	V _{CC} =300V	µs
	t _r	–	–	1.0	I _c =20A	
Turn-off time	t _{off}	–	–	1.0	V _{GE} =±15V	
	t _f	–	–	0.35	R _G =120ohm	
Diode forward on voltage	V _F	–	–	3.0	I _F =20A, V _{GE} =0V	V
Reverse recovery time	t _{rr}	–	–	0.3	I _F =20A, -di/dt=60A/µs, V _{GE} =-10V	µs

● Thermal resistance characteristics

Item	Symbol	Characteristics			Conditions	Unit
		Min.	Typ.	Max.		
Thermal resistance	R _{th(j-c)}	–	–	1.79	IGBT	°C/W
	R _{th(j-c)}	–	–	2.5	Diode	°C/W
	R _{th(c-f)*2}	–	0.06	–	the base to cooling fin	°C/W

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

■ Characteristics (Representative)

