

# 1MBK50D-060S

Molded IGBT

## 600V / 50A Molded Package

### ■ Features

- Small molded package
- Low power loss
- Soft switching with low switching surge and noise
- High reliability, high ruggedness (RBSOA, SCSOA etc.)
- Comprehensive line-up

### ■ Applications

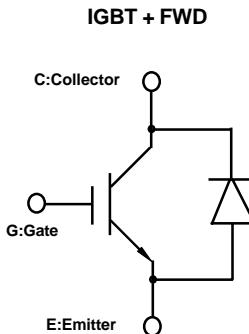
- Inverter for Motor drive
- AC and DC Servo drive amplifier
- Uninterruptible power supply

### ■ Maximum ratings and characteristics

#### ● Absolute maximum ratings (Tc=25°C)

Item	Symbol	Rating	Unit
Collector-Emitter voltage	Vces	600	V
Gate-Emitter voltage	Vges	±20	V
Collector current	Ic25	65	A
DC Tc=25°C	Ic100	50	A
Tc=100°C	Icp	150	A
1ms	Tc=25°C		
Max. power dissipation (IGBT)	Pc	200	W
Max. power dissipation (FWD)	Pc	130	W
Operating temperature	Tj	+150	°C
Storage temperature	Tstg	-40 to +150	°C
Screw torque	-	39.2 to 58.8	N·m

### ■ Equivalent Circuit Schematic



#### ● Electrical characteristics (at Tc=25°C unless otherwise specified)

Item	Symbol	Characteristics			Conditions	Unit
		Min.	Typ.	Max.		
Zero gate voltage collector current	ICes	—	—	1.0	VGE=0V, VCE=600V	mA
Gate-Emitter leakage current	IGes	—	—	10	VCE=0V, VGE=±20V	µA
Gate-Emitter threshold voltage	VGE(th)	4.0	5.0	6.0	VCE=20V, Ic=50mA	V
Collector-Emitter saturation voltage	VCE(sat)	—	2.4	2.9	VGE=15V, Ic=50A	V
Input capacitance	Cies	—	2500	—	VGE=0V VCE=25V f=1MHz	pF
Output capacitance	Coes	—	240	—		
Reverse transfer capacitance	Cres	—	130	—		
Switching Time	Turn-on time	ton *	—	0.15	Vcc=300V, Ic=50A VGE=±15V RG=33 ohm (Half Bridge) Inductance Load	µs
		tr *	—	0.09		
		trr2	—	0.03		
	Turn-off time	tff	—	0.50	Vcc=300V, Ic=50A VGE=+15V RG=8 ohm (Half Bridge) Inductance Load	µs
		tf	—	0.10		
		trr2	—	0.03		
FWD forward on voltage	VF	—	2.0	2.5	I=50A, VGE=0V	V
Reverse recovery time	trr	—	0.06	0.10	I=50A, VGE=-10V, VR=300V, di/dt=100A/µs	µs

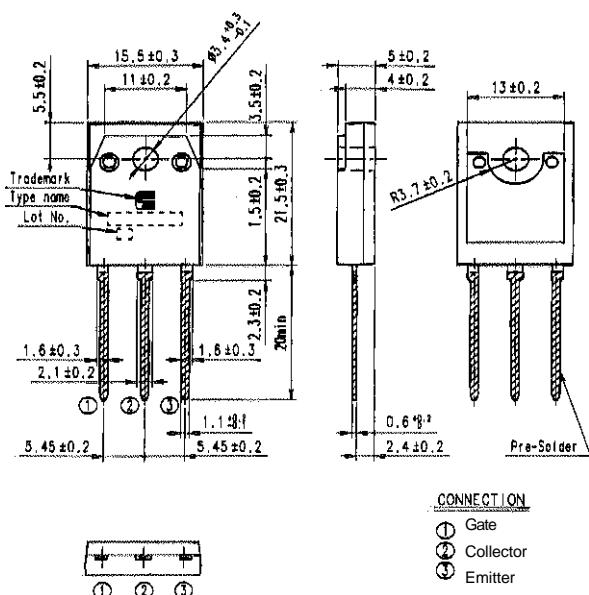
\* Turn-on characteristics include trr2. See a figure in next page.

#### ● Thermal resistance characteristics

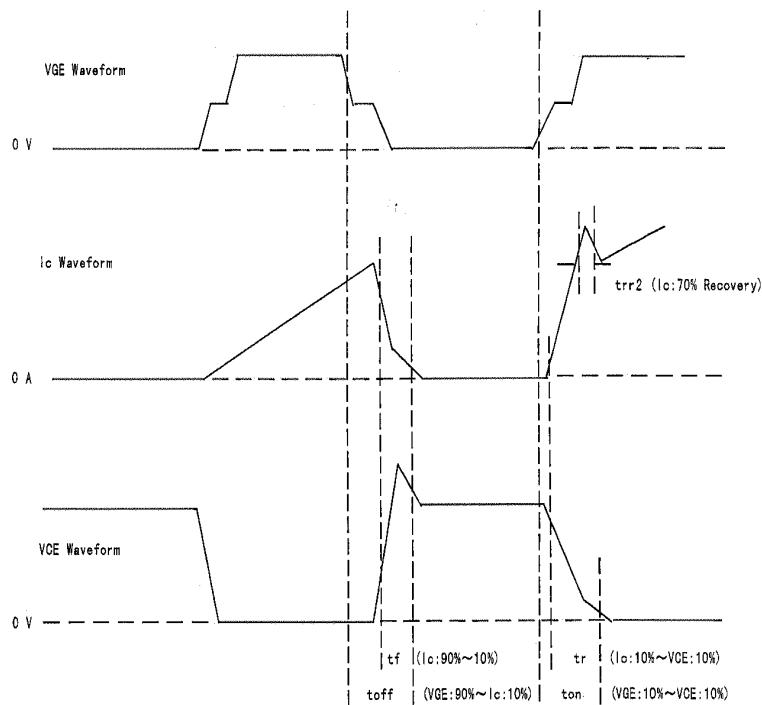
Item	Symbol	Characteristics			Conditions	Unit
		Min.	Typ.	Max.		
Thermal resistance	Rth(j-c)	—	—	0.63	IGBT	°C/W
	Rth(j-c)	—	—	0.96		

## ■ Outline drawings, mm

TO-247



### ■ Switching waveform (Inductance load)



## ■ Measurement circuit

