

# IGBT Module for Hybrid Electric Vehicle

## High Reliability Pb Free Product

### ■ Features

- 600V/300A Compact Package for 2-pack & 6-pack
- Pb Free package
- 6th Generation IGBT chip with trench-gate FS
- Temperature & Current sensing Functions

### ■ Applications

- Inverter for Electric Propulsion System (10-20kW Motor)

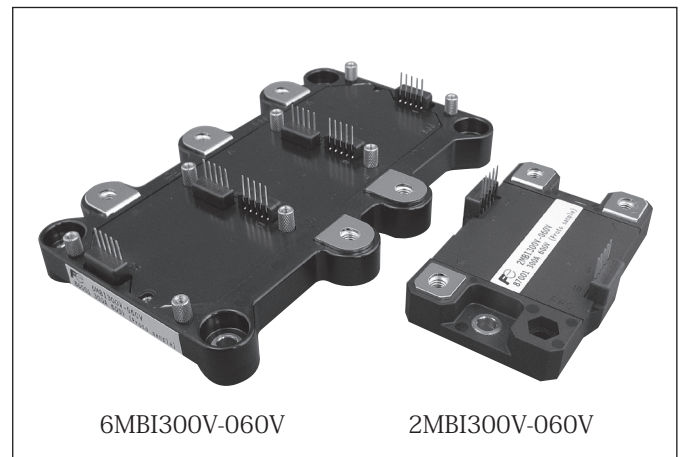
### ■ Specifications

- Absolute Maximam Rating  
(Tc=25°C unless otherwise specified)

Item	Symbol	Rating	Unit
Collector-emitter voltage	V <sub>CEs</sub>	600	V
Gate emitter voltage	V <sub>GEs</sub>	± 20	V
Collector current	DC	I <sub>c</sub>	300 A
	DC	-I <sub>c</sub>	300 A
Max. power dissipation (1 device)	P <sub>c</sub>	tbd	W
Operating temperature	T <sub>j</sub>	150	°C
Storage temperature	T <sub>stg</sub>	-40 ~ +125	°C
Isolation voltage	Viso	AC2500(1min)	V
Screw torque	Mounting (M5)	3.5	Nm
	Terminals (M5)	3.5	Nm

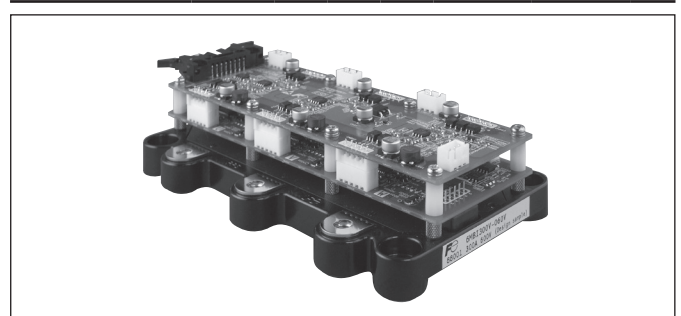
### ■ Evaluation Circuit Board for 6MBI300V-060V

- Optical isolated signal input, alarm output
- Detection of High Temperature
- Detection of Short circuit
- Detection of Low Voltage
- Temperature Output
- Drive-IC : Fuji Electric Products



- Electrical Characteristic  
(T<sub>j</sub>=25°C unless otherwise specified)

Item	Symbol	Value			Conditions	Unit	
		Min.	Typ.	Max.			
Zero gate voltage collector current	I <sub>CEs</sub>	-	-	2.0	V <sub>GE</sub> =0V, V <sub>CE</sub> =600V	mA	
Gate-emitter leakage current	I <sub>GES</sub>	-	-	0.4	V <sub>CE</sub> =0V, V <sub>GE</sub> = ± 20V	μ A	
Gate-emitter threshold voltage	V <sub>GE(th)</sub>	tbd	6.2	tbd	V <sub>CE</sub> =0V, I <sub>c</sub> =300mA	V	
Collector-emitter saturation voltage	V <sub>CE(sat) terminal</sub>	-	2.05	tbd	T <sub>j</sub> =25°C	V <sub>GE</sub> =15V I <sub>c</sub> =300A	V
		-	2.6	-	T <sub>j</sub> =125°C		
Input capacitance	C <sub>ies</sub>	-	tbd	-	V <sub>GE</sub> =0V	pF	
Forward voltage of diode	V <sub>F terminal</sub>	-	1.9	tbd	T <sub>j</sub> =25°C	V <sub>GE</sub> =0V I <sub>F</sub> =300A	V
		-	1.88	-	T <sub>j</sub> =125°C		

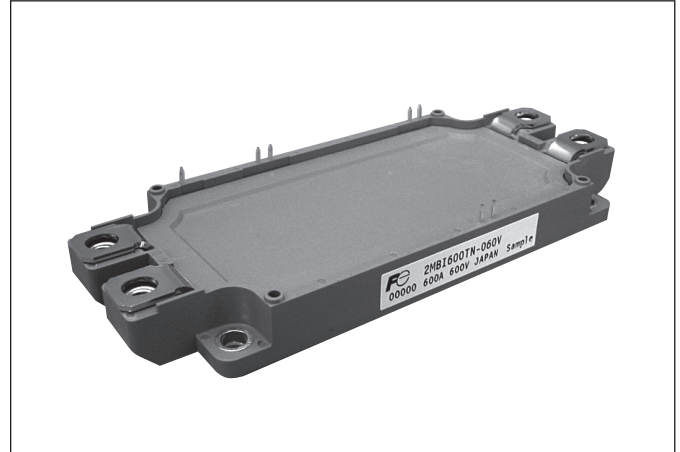


# IGBT Module for Hybrid Electric Vehicle

High Reliability Pb Free Product

## ■ Features

- Compatible with the Industrial Package
  - Compact low profile
  - U2-series Planar-NPT technology for 600V
  - U4-series Trench-FS technology for 1200V
- Pb Free Package



## ■ Applications

- Inverter for Electric Propulsion System 30 to 80kW Motor
  - Back Boost Converter

## ■ Characteristics

(T<sub>j</sub>=25°C)

Device Type	V <sub>CES</sub> Volts	V <sub>GE</sub> Volts	I <sub>c</sub> Continuous Amps.	V <sub>CE(sat)</sub> Terminal Typ. Volts	V <sub>F</sub> Terminal Typ. Volts	Package
2MBI600TN-060V	600	20	600	2.65	2.55	M254
2MBI450UN-120V	1200	20	450	2.40	2.20	M254

## ■ Evaluation Circuit Board

- Optical isolated signal input, alarm output
- Short circuit protection (V<sub>CE</sub> monitoring method)
- Low voltage protection for supplied voltage
- Drive-IC : Fuji Electric Products
- Potential - isolated power supply

