

IGBT MODULES

PRODUCT MANUAL

CATALOG

IGBT MODULES	1
PRODUCT MANUAL	1
1.1 IGBT Half Bridge Modules	4
THG70GB06D IGBT Half Bridge Module	4
I. Product Characteristics	4
II. Implementation standard and quality level	4
III. Main Uses	4
IV. Electrical schematic diagram	4
V. Maximum ratings	4
VI. Electrical Characteristics	5
VII. Product Outline Drawing	5
VIII. Precautions	5
TSG75GB12D IGBT Half Bridge Modules	6
I. Product Characteristics	6
II. Implementation standard and quality level	6
III. Main Uses	6
IV. Electrical schematic diagram	6
V. Maximum ratings	6
VI. Electrical Characteristics	7
VII. Product Outline Drawing	7
VIII. Lead-out arrangement	7
IX. Precautions	8
THG150GB12D IGBT Half Bridge Modules	9
I. Product Characteristics	9
II. Implementation standard and quality level	9
III. Main Uses	9
IV. Electrical schematic diagram	9
V. Maximum ratings	9
VI. Electrical Characteristics	9
VII. Product Outline Drawing	10
VIII. Lead-out arrangement	10
IX. Precautions	11
THG300GB12D IGBT Half Bridge Modules	12
I. Product Characteristics	12
II. Implementation standard and quality level	12
III. Main Uses	12

IV. Electrical schematic diagram	12
V. Maximum ratings	12
VI. Electrical Characteristics	13
VII. Product Outline Drawing	13
VIII. Lead-out arrangement	13
IX. Precautions	14
TPG600GB06D IGBT Half Bridge Modules	15
I. Product Characteristics	15
II. Implementation standard and quality level	15
III. Main Uses	15
IV. Electrical schematic diagram	15
V. Maximum ratings	15
VI. Electrical Characteristics	16
VII. Product Outline Drawing	16
VIII. Precautions	16
1.2 IGBT H-Bridge Circuit Module	17
THG70GH12D H-Bridge Circuit Module	17
I. Product Characteristics	17
II. Implementation standard and quality level	17
III. Main Uses	17
IV. Electrical schematic diagram	17
V. Maximum ratings	17
VI. Electrical Characteristics	18
VII. Product Outline Drawing	18
VIII. Precautions	18
1.3 IGBT Three-Phase Bridge Module	19
TSG50GD12D IGBT Three-Phase Bridge Module	19
I. Product Characteristics	19
II. Implementation standard and quality level	19
III. Main Uses	19
IV. Electrical schematic diagram	19
V. Electrical Characteristics	19
VI. Product Outline Drawing	20
VII. Lead-out arrangement	20
VIII. Precautions	21
TSG200GB06KE3 IGBT Three-Phase Bridge Module	22
I. Product Characteristics	22
II. Implementation standard and quality level	22
III. Main Uses	22
IV. Electrical schematic diagram and pin configuration	22
V. Maximum ratings	23
VI. Electrical Characteristics	23
VII. Product Outline Drawing	23
IX. Precautions	24

THG200GD06D IGBT Three-Phase Bridge Module	25
I. Product Characteristics	25
II. Implementation standard and quality level	25
III. Main Uses	25
IV. Electrical schematic diagram	25
V. Electrical Characteristics	26
VI. Product Outline Drawing	26
VII. Lead-out arrangement	27
VIII. Precautions	28
THG200GD12D IGBT Three-Phase Bridge Module	29
I. Product Characteristics	29
II. Implementation standard and quality level	29
III. Main Uses	29
IV. Electrical schematic diagram	29
V. Electrical Characteristics	30
VI. Product Outline Drawing	30

1.1 IGBT Half Bridge Modules

THG70GB06D IGBT Half Bridge Module

I. Product Characteristics

IGBT half-bridge module, with metal fully sealed structure and modular design, can replace similar foreign products. Combining the three technical advantages of high frequency, high voltage and high current, the product is small in size, easy to install and highly reliable.

II. Implementation standard and quality level

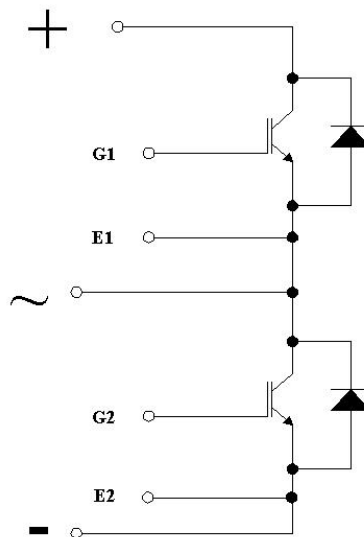
GJB2438A-2002 General Specification for Hybrid Integrated Circuits

Quality grade: military product

III. Main Uses

It is widely used in military fields such as airborne, shipboard, radar and other follower systems and servo motor drives, high-power military power supplies and so on.

IV. Electrical schematic diagram



V. Maximum ratings

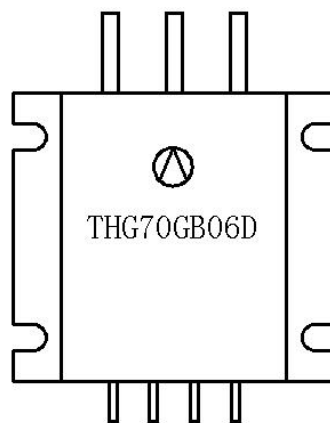
Parameter	Notation	Rated value
Max. operating current	I_{CM}	100 A
Storage temperature range	T_{stg}	$-55^{\circ}\text{C} \sim 150^{\circ}\text{C}$

VI. Electrical Characteristics

Parameters	Notation	Conditions, unless otherwise specified ($-45^{\circ}\text{C} \leq T_{\text{C}} \leq 100^{\circ}\text{C}$)	Group A	Test Methods	Limit value		Units
					Min	Max	
Gate-Emitter Threshold Voltage (IGBT unit)	$V_{\text{GE(th)}}$	$V_{\text{CE}} = V_{\text{GE}}, I_{\text{C}} = 2\text{mA}$	A1 A2 A3	Specification 3.5.2.1	5.0	7.0	V
Gate-Emitter Cut-off Current (IGBT unit)	$I_{\text{GES}(+)}$	$V_{\text{CE}} = 0\text{V}, V_{\text{GE}} = \pm 20\text{V},$ $T_{\text{C}} = 100^{\circ}\text{C}$	A2	Specification 3.5.2.2	-	600	nA
	$I_{\text{GES}(-)}$				-600	-	
Collector-Emitter Cut-off Current (IGBT unit)	I_{CES}	$V_{\text{CE}} = 600\text{V}, V_{\text{GE}} = 0\text{V},$ $T_{\text{A}} = 25^{\circ}\text{C}$	A1	Specification 3.5.2.3	-	0.3	mA
		$V_{\text{CE}} = 600\text{V}, V_{\text{GE}} = 0\text{V},$ $T_{\text{C}} = 100^{\circ}\text{C}$	A2		-	3.0	
Collector-Emitter Saturation Voltage (IGBT unit)	$V_{\text{CE(sat)}}$	$V_{\text{GE}} = 15\text{V}, I_{\text{C}} = 70\text{A},$ $T_{\text{A}} = 25^{\circ}\text{C}$	A1	Specification 3.5.2.4	-	2.0	V
Diode forward voltage (IGBT)	V_{F}	$I_{\text{F}} = 70\text{A}, V_{\text{GE}} = 0\text{V},$ $T_{\text{A}} = 25^{\circ}\text{C}$	A1	Specification 3.5.2.5	-	2.0	V

VII. Product Outline Drawing

Outline dimensions: 41mm×37mm×11mm



VIII. Precautions

This device is a power device, pay attention to heat dissipation when using, so that the device shell temperature within the allowable range.

TSG75GB12D IGBT Half Bridge Modules

I. Product Characteristics

IGBT half-bridge module, with metal base plate and plastic shell package, adopts modular design. Combining the three technical advantages of high frequency, high voltage and high current, can replace similar foreign products.

II. Implementation standard and quality level

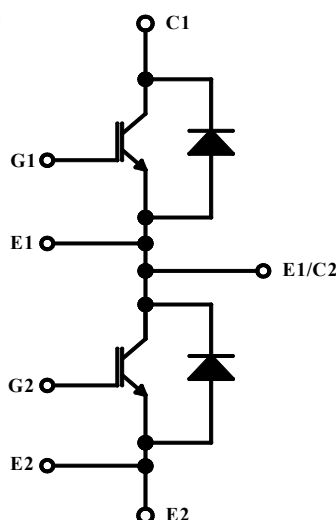
SJ20668-1998 General Specification for Microcircuit Modules

Quality grade: military product

III. Main Uses

It is mainly used for inverter, UPS, industrial heating power supply, welding machine and AC and DC motor control. It has a wide range of applications in the fields of airborne, shipboard, radar and other follower systems and servo motor drives, high-power power supplies and so on.

IV. Electrical schematic diagram



V. Maximum ratings

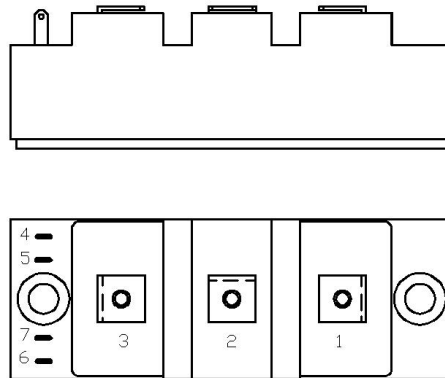
Parameter	Notation	Rated value
Max. operating current	I_{CM}	100 A
Storage temperature range	T_{stg}	-40°C~85°C

VI. Electrical Characteristics

Parameter	Notation	Conditions, unless otherwise specified ($-40^{\circ}\text{C} \leq T_{\text{C}} \leq 85^{\circ}\text{C}$)	Limit value		Units
			Min.	Max.	
Gate-Emitter Threshold Voltage (IGBT unit)	$V_{\text{GE(th)}}$	$V_{\text{CE}} = V_{\text{GE}}, I_{\text{C}} = 4\text{mA}, T_{\text{A}} = 25^{\circ}\text{C}$	4.5	6.5	V
Gate-Emitter Cut-off Current (IGBT unit)	$I_{\text{GES}(+)}$	$V_{\text{CE}} = 0\text{V}, V_{\text{GE}} = \pm 20\text{V}, T_{\text{A}} = 25^{\circ}\text{C}$	-	300	nA
	$I_{\text{GES}(-)}$		-300	-	
Collector-Emitter Cut-off Current (IGBT unit)	I_{CES}	$V_{\text{CE}} = 1200\text{V}, V_{\text{GE}} = 0\text{V}, T_{\text{A}} = 25^{\circ}\text{C}$	-	0.2	mA
		$V_{\text{CE}} = 1200\text{V}, V_{\text{GE}} = 0\text{V}, T_{\text{C}} = 85^{\circ}\text{C}$	-	2.0	
Collector-Emitter Saturation Voltage (IGBT unit)	$V_{\text{CE(sat)}}$	$V_{\text{GE}} = 15\text{V}, I_{\text{C}} = 75\text{A}, T_{\text{A}} = 25^{\circ}\text{C}$	-	2.6	V
Diode forward voltage (IGBT)	V_{FM}	$I_{\text{FM}} = 75\text{A}, V_{\text{GE}} = 0\text{V}, T_{\text{A}} = 25^{\circ}\text{C}$	-	2.5	V

VII. Product Outline Drawing

Outline dimensions: 94mm×34mm×29mm



VIII. Lead-out arrangement

№	Notation	Name	№	Notation	Name
1	C2/ E1	Lower arm-collector/Upper arm-emitter electrode	5	E1	Upper arm-emitter electrode
2	E2	Lower arm-emitter electrode	6	G2	Lower arm-gate
3	C1	Upper arm-collector	7	E2	Lower arm-emitter electrode
4	G1	Upper arm-gate			

IX. Precautions

This device is a power device, pay attention to heat dissipation when using, so that the device shell temperature within the allowable range.

THG150GB12D IGBT Half Bridge Modules

I. Product Characteristics

IGBT half-bridge module, with metal base plate and plastic shell package, adopts modular design. Combining the three technical advantages of high frequency, high voltage and high current, can replace similar foreign products.

II. Implementation standard and quality level

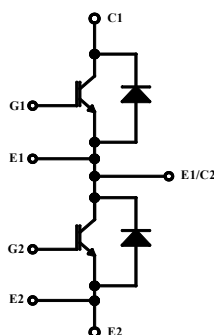
SJ20668-1998 General Specification for Microcircuit Modules

Quality grade: military product

III. Main Uses

It is mainly used for inverter, UPS, industrial heating power supply, welding machine and AC and DC motor control. It has a wide range of applications in the fields of airborne, shipboard, radar and other follower systems and servo motor drives, high-power power supplies and so on.

IV. Electrical schematic diagram



V. Maximum ratings

Parameter	Notation	Rated value
Max. operating current	I_{CM}	200 A
Storage temperature range	T_{stg}	$-40^{\circ}\text{C} \sim 85^{\circ}\text{C}$

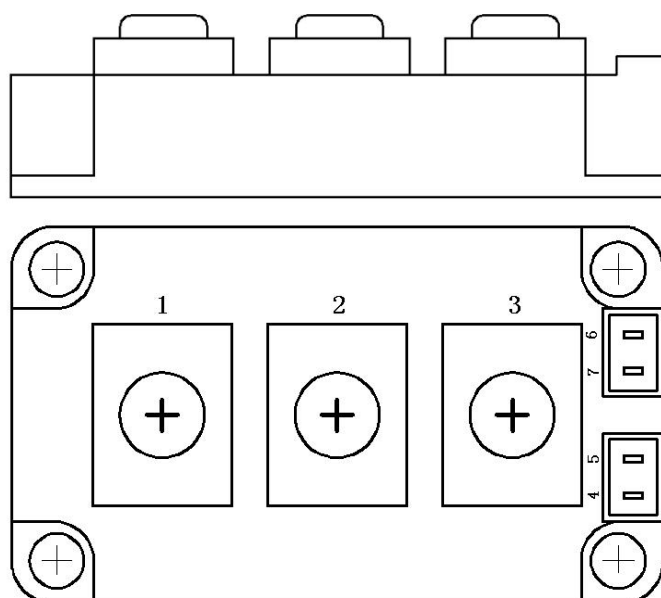
VI. Electrical Characteristics

Parameter	Notation	Conditions, unless otherwise specified ($-40^{\circ}\text{C} \leq T_C \leq 85^{\circ}\text{C}$)	Limit value		Units
			Min.	Max.	

Gate-Emitter Threshold Voltage (IGBT unit)	$V_{GE(th)}$	$V_{CE}=V_{GE}, I_C=4mA$	5.0	7.0	V
Gate-Emitter Cut-off Current (IGBT unit)	I_{GES}	$V_{CE}=0V, V_{GE}=\pm 20V, T_C=85^\circ C$	-300	300	nA
Collector-Emitter Cut-off Current (IGBT unit)	I_{CES}	$V_{CE}=1200V, V_{GE}=0V, T_A=25^\circ C, T_C=85^\circ C$	-	500	μA
Collector-Emitter Saturation Voltage (IGBT unit)	$V_{CE(sat)}$	$V_{GE}=15V, I_C=150A, T_A=25^\circ C, T_C=85^\circ C$	-	3.5	V
Diode forward voltage (IGBT)	V_{FM}	$I_{FM}=150A, V_{GE}=0V, T_A=25^\circ C$	-	3.0	V

VII. Product Outline Drawing

Outline dimensions: 106mm×62mm×26mm



VIII. Lead-out arrangement

№	Notation	Name	№	Notation	Name
1	C2/ E1	Lower arm-collector/ Upper arm-emitter electrode	5	E1	Upper arm-emitter electrode
2	E2	Lower arm-emitter electrode	6	G2	Lower arm-gate
3	C1	Upper arm-collector	7	E2	Lower arm-emitter electrode
4	G1	Upper arm-gate			

IX. Precautions

This device is a power device, pay attention to heat dissipation when using, so that the device shell temperature within the allowable range.

THG300GB12D IGBT Half Bridge Modules

I. Product Characteristics

IGBT half-bridge module, with metal base plate, plastic shell package and modular design. Combining the three technical advantages of high frequency, high voltage and high current, adopting universal design, our product can replace similar foreign products in terms of electrical characteristics, wiring mode and appearance.

II. Implementation standard and quality level

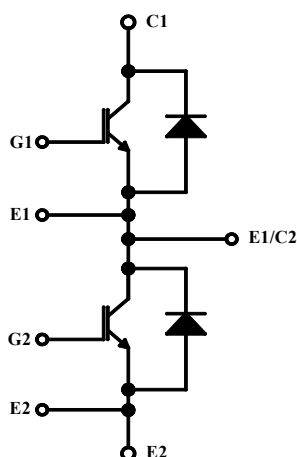
JB/T 8951.2-1999

Quality grade: industrial product

III. Main Uses

It is mainly used for inverter, UPS, industrial heating power supply, welding machine and AC and DC motor control. It's also widely used in fields such as airborne, shipboard, radar and other follower systems and servo motor drives, high power supplies and so on.

IV. Electrical schematic diagram



V. Maximum ratings

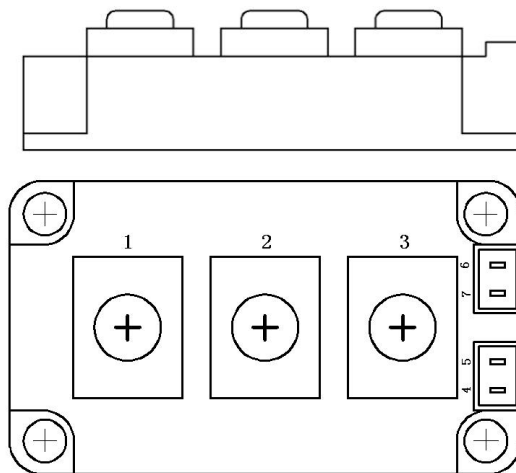
Parameter	Notation	Rated value
Max. operating current	I_{CM}	300 A
Storage temperature range	T_{stg}	-40°C~125°C

VI. Electrical Characteristics

Parameter	Notation	Conditions, unless otherwise specified ($T_A=25^{\circ}\text{C}$)	Limit value		Units
			Min.	Max.	
Gate-Emitter Threshold Voltage (IGBT unit)	$V_{GE(th)}$	$V_{CE}=V_{GE}$, $I_C=6\text{mA}$	5.0	7.0	V
Gate-Emitter Cut-off Current (IGBT unit)	I_{GES}	$V_{CE}=0\text{V}$, $V_{GE}=\pm 20\text{V}$, $T_C=100^{\circ}\text{C}$	-600	600	nA
Collector-Emitter Cut-off Current (IGBT unit)	I_{CES}	$V_{CE}=1200\text{V}$, $V_{GE}=0\text{V}$, $T_A=25^{\circ}\text{C}$, $T_C=100^{\circ}\text{C}$	-	20	μA
Collector-Emitter Saturation Voltage (IGBT unit)	$V_{CE(sat)}$	$V_{GE}=15\text{V}$, $I_C=300\text{A}$, $T_A=25^{\circ}\text{C}$, $T_C=100^{\circ}\text{C}$	-	3.0	V
Diode forward voltage (IGBT)	V_{FM}	$I_{FM}=300\text{A}$, $V_{GE}=0\text{V}$, $T_A=25^{\circ}\text{C}$	-	3.0	V

VII. Product Outline Drawing

Outline dimensions: 106mm×62mm×26mm



VIII. Lead-out arrangement

№	Notation	Name	№	Notation	Name
1	C2/ E1	Lower arm-collector/Upper arm-emitter electrode	5	E1	Upper arm-emitter electrode
2	E2	Lower arm-emitter electrode	6	G2	Lower arm-gate
3	C1	Upper arm-collector	7	E2	Lower arm-emitter electrode
4	G1	Upper arm-gate			

IX. Precautions

This device is a power device, pay attention to heat dissipation when using, so that the device shell temperature within the allowable range.

TPG600GB06D IGBT Half Bridge Modules

I. Product Characteristics

IGBT half-bridge module, with metal base plate and plastic shell package, adopts modular design. Combining the three technical advantages of high frequency, high voltage and high current, adopting universal design, our product can replace similar foreign products in terms of electrical characteristics, wiring mode and appearance.

II. Implementation standard and quality level

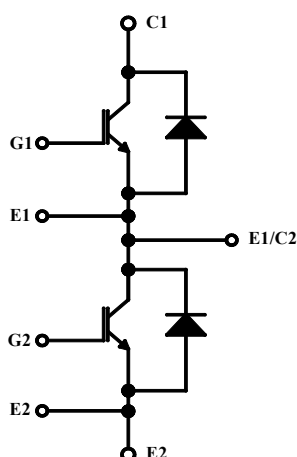
SJ20668-1998 General Specification for Microcircuit Modules

Quality grade: military product

III. Main Uses

It is mainly used for inverter, UPS, industrial heating power supply, welding machine and AC and DC motor control. It's also widely used in fields such as airborne, shipboard, radar and other follower systems and servo motor drives, high power supplies and so on.

IV. Electrical schematic diagram



V. Maximum ratings

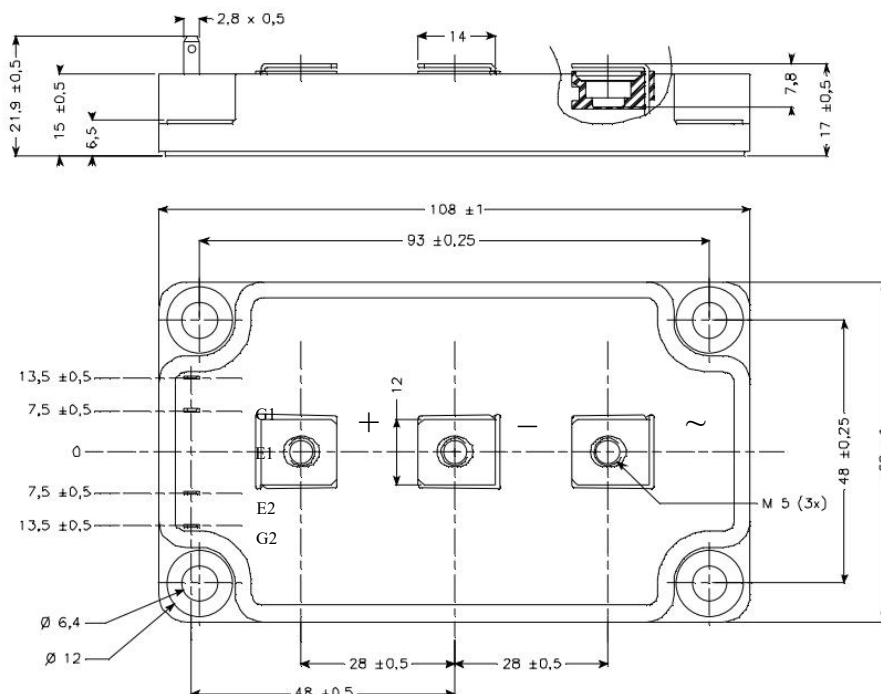
Parameter	Notation	Rated value
Max. operating current	I_{CM}	600 A
Storage temperature range	T_{stg}	-40°C~85°C

VI. Electrical Characteristics

Parameter	Notation	Conditions, unless otherwise specified ($-40^{\circ}\text{C} \leq T_{\text{C}} \leq 85^{\circ}\text{C}$)	Limit value		Units
			Min.	Max.	
Gate-Emitter Threshold Voltage (IGBT unit)	$V_{\text{GE (th)}}$	$V_{\text{CE}}=V_{\text{GE}}, I_{\text{C}}=4\text{mA}, T_{\text{A}}=25^{\circ}\text{C}$	5.0	7.0	V
Gate-Emitter Cut-off Current (IGBT unit)	$I_{\text{GES (}^{+}\text{)}}$	$V_{\text{CE}}=0\text{V}, V_{\text{GE}}=\pm 20\text{V}, T_{\text{A}}=25^{\circ}\text{C}$	-	600	nA
	$I_{\text{GES (}^{-}\text{)}}$		-600	-	
Collector-Emitter Cut-off Current (IGBT unit)	I_{CES}	$V_{\text{CE}}=600\text{V}, V_{\text{GE}}=0\text{V}, T_{\text{A}}=25^{\circ}\text{C}$	-	0.2	mA
		$V_{\text{CE}}=600\text{V}, V_{\text{GE}}=0\text{V}, T_{\text{C}}=85^{\circ}\text{C}$	-	2.0	
Collector-Emitter Saturation Voltage (IGBT unit)	$V_{\text{CE (sat)}}$	$V_{\text{GE}}=15\text{V}, I_{\text{C}}=450\text{A}, T_{\text{A}}=25^{\circ}\text{C}$	-	2.8	V
Diode forward voltage (IGBT)	V_{FM}	$I_{\text{FM}}=500\text{A}, V_{\text{GE}}=0\text{V}, T_{\text{A}}=25^{\circ}\text{C}$	-	2.6	V

VII. Product Outline Drawing

Max. outline dimensions: 109mm×63mm×22mm



VIII. Precautions

This device is a power device, pay attention to heat dissipation when using, so that the device shell temperature within the allowable range.

1.2 IGBT H-Bridge Circuit Module

THG70GH12D H-Bridge Circuit Module

I. Product Characteristics

IGBT H-bridge module, with metal fully sealed structure and modular design, can replace similar foreign products. Combining the three technical advantages of high frequency, high voltage and high current, the product is small in size, easy to install and highly reliable.

II. Implementation standard and quality level

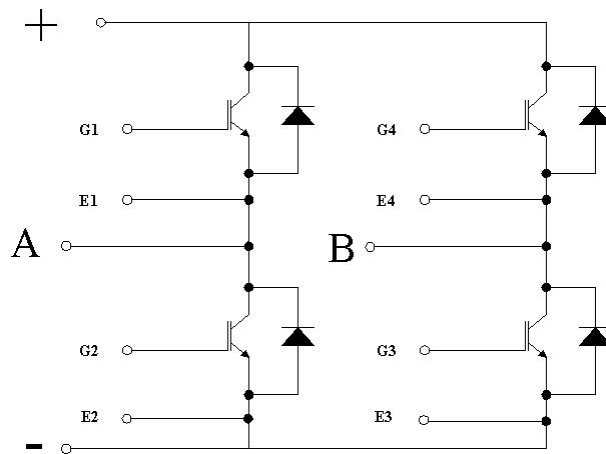
GJB2438A-2002 General Specification for Hybrid Integrated Circuits

Quality grade: military product

III. Main Uses

It is mainly used for inverter, UPS, industrial heating power supply, welding machine and AC and DC motor control. It has a wide range of applications in the fields of airborne, shipboard, radar and other follower systems and servo motor drives, high-power power supplies and so on.

IV. Electrical schematic diagram



V. Maximum ratings

Parameter	Notation	Rated value
Max. operating current	I_{CM}	100 A
Storage temperature range	T_{stg}	-55°C~150°C

VI. Electrical Characteristics

Parameter	Notation	Conditions, unless otherwise specified ($-55^{\circ}\text{C} \leq T_{\text{C}} \leq 125^{\circ}\text{C}$)	Subgroups A	Testing Methods	Limit value		Units
					Min.	Max.	
Gate-Emitter Threshold Voltage (IGBT unit)	$V_{\text{GE(th)}}$	$V_{\text{CE}}=V_{\text{GE}}, I_{\text{C}}=4\text{mA},$ $T_{\text{A}}=25^{\circ}\text{C}$	A1	Specification 3.5.2.1	5.5	7.5	V
		$V_{\text{CE}}=V_{\text{GE}}, I_{\text{C}}=4\text{mA},$ $T_{\text{A}}=-55^{\circ}\text{C}, T_{\text{C}}=125^{\circ}\text{C}$	A2, A3		4.5	7.5	
Gate-Emitter Cut-off Current (IGBT unit)	$I_{\text{GES}}(+)$	$V_{\text{CE}}=0\text{V}, V_{\text{GE}}=\pm 20\text{V},$ $T_{\text{C}}=125^{\circ}\text{C}$	A2	Specification 3.5.2.2	-	300	nA
	$I_{\text{GES}}(-)$				-300	-	
Collector-Emitter Cut-off Current (IGBT unit)	I_{CES}	$V_{\text{CE}}=1200\text{V}, V_{\text{GE}}=0\text{V},$ $T_{\text{A}}=25^{\circ}\text{C}$	A1	Specification 3.5.2.3	-	0.3	mA
		$V_{\text{CE}}=1200\text{V}, V_{\text{GE}}=0\text{V},$ $T_{\text{C}}=125^{\circ}\text{C}$	A2		-	3.0	
Collector-Emitter Saturation Voltage (IGBT unit)	$V_{\text{CE(sat)}}$	$V_{\text{GE}}=15\text{V}, I_{\text{C}}=70\text{A},$ $T_{\text{A}}=25^{\circ}\text{C}$	A1	Specification 3.5.2.4	-	2.6	V
Diode forward voltage (IGBT)	V_{F}	$I_{\text{F}}=70\text{A}, V_{\text{GE}}=0\text{V},$ $T_{\text{A}}=25^{\circ}\text{C}$	A1	Specification 3.5.2.5	-	2.5	V

VII. Product Outline Drawing

Outline dimensions: 63mm×57mm×11mm



VIII. Precautions

This device is a power device, pay attention to heat dissipation when using, so that the device shell temperature within the allowable range.

1.3 IGBT Three-Phase Bridge Module

TSG50GD12D IGBT Three-Phase Bridge Module

I. Product Characteristics

IGBT Three-Phase Bridge Module, with metal base plate and plastic shell package, adopts modular design. Combining the three technical advantages of high frequency, high voltage and high current, adopting universal design, our product can replace similar foreign products in terms of electrical characteristics, wiring mode and appearance.

II. Implementation standard and quality level

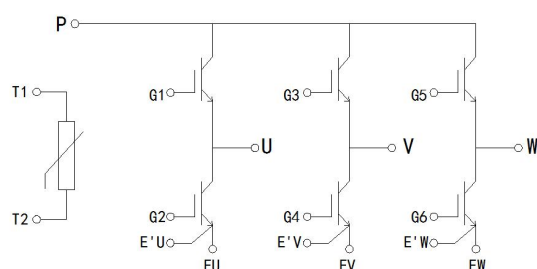
SJ20668-1998 General Specification for Microcircuit Modules

Quality grade: military product

III. Main Uses

It is mainly used for inverter, UPS, industrial heating power supply, welding machine and AC and DC motor control. It has a wide range of applications in the fields of airborne, shipboard, radar and other follower systems and servo motor drives, high-power power supplies and so on.

IV. Electrical schematic diagram



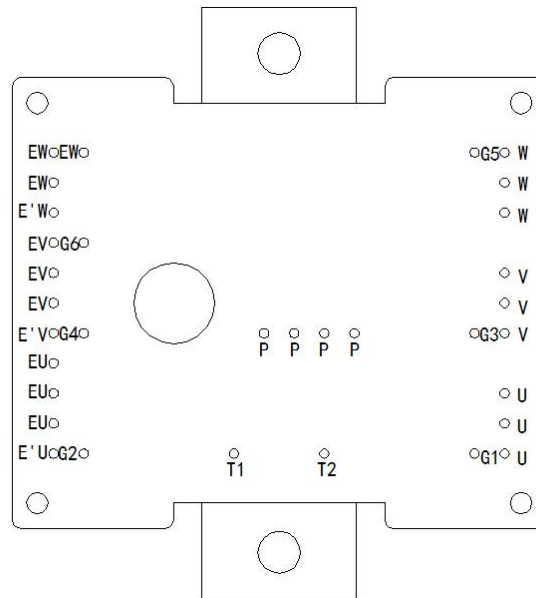
V. Electrical Characteristics

Parameter	Notation	Conditions, unless otherwise specified ($T_A=25^{\circ}\text{C}$)	Limit value		Units
			Min.	Max.	
Collector-Emitter Voltage	V_{CES}		1200	-	V
Collector-Emitter Cut-off Current	I_{CES}	$V_{\text{CES}}=1200\text{V}$	-	1	mA
Gate-Emitter Threshold Voltage (IGBT unit)	$V_{\text{GE(th)}}$	$V_{\text{GE}}=V_{\text{CE}}, I_{\text{C}}=3.2\text{mA}$	5.0	6.5	V

Gate-Emitter Cut-off Current (IGBT unit)	$I_{GES (+)}$	$V_{CE}=0V, V_{GE}=\pm 20V$	-	100	nA
	$I_{GES (-)}$		-100	-	
Collector-Emitter Saturation Voltage	$V_{CE (sat)}$	$I_C=50A, V_G=15V$	-	2.5	V
Forward voltage (Diode)	V_F	$I_F=50A, V_{GE}=0V$	-	1.8	V

VI. Product Outline Drawing

Outline dimensions: 57mm×63mm×12mm



VII. Lead-out arrangement

Notation	Name	Notation	Name
P	Main electrode (+)	G4	V-phase lower arm (gate)
EU, EV, EW	Main electrode (-)	G5	W-phase upper arm (gate)
U	Main electrode (U)	G6	W-phase lower arm (gate)
V	Main electrode (V)	E'U	U-phase lower arm (emitter electrode)
W	Main electrode (W)	E'V	V-phase lower arm (emitter electrode)
G1	U-phase upper arm (gate)	E'W	W-phase lower arm (emitter electrode)
G2	U-phase lower arm (gate)	T1	Thermistor terminal 1
G3	V-phase upper arm (gate)	T2	Thermistor terminal 2

VIII. Precautions

This device is a power device, pay attention to heat dissipation when using, so that the device shell temperature within the allowable range.

TSG200GB06KE3 IGBT Three-Phase Bridge Module

I. Product Characteristics

IGBT Three-Phase Bridge Module, with metal base plate and plastic shell package, adopts modular design. Combining the three technical advantages of high frequency, high voltage and high current, adopting universal design, our product can replace similar foreign products in terms of electrical characteristics, wiring mode and appearance.

II. Implementation standard and quality level

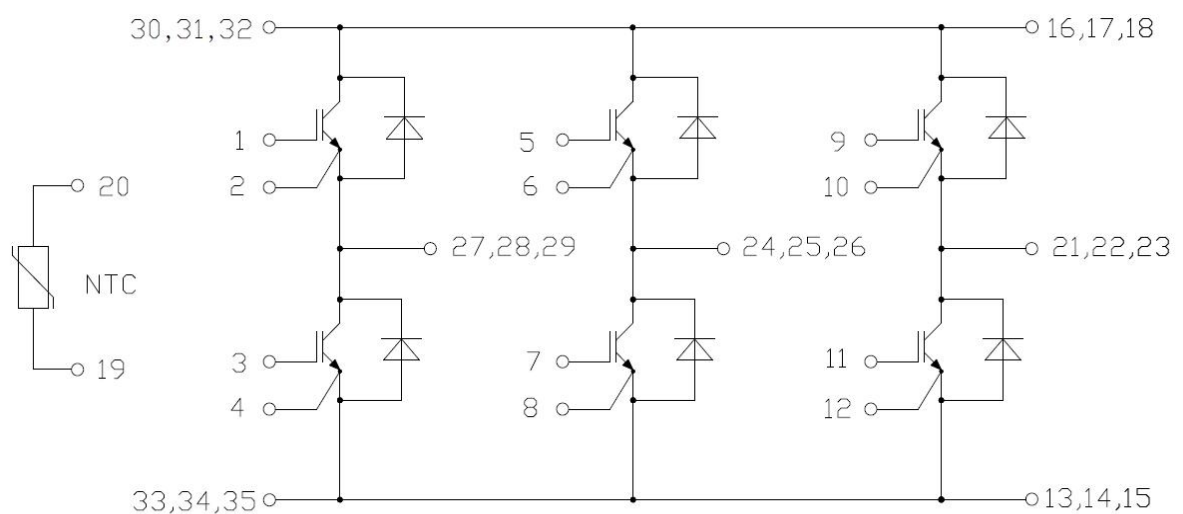
SJ20668-1998 General Specification for Microcircuit Modules

Quality grade: military product

III. Main Uses

It is mainly used for inverter, UPS, industrial heating power supply, welding machine and AC and DC motor control. It's also widely used in fields such as airborne, shipboard, radar and other follower systems and servo motor drives, high power supplies and so on.

IV. Electrical schematic diagram and pin configuration



V. Maximum ratings

Parameter	Notation	Rated value
Max. operating current	I_{CM}	200 A
Storage temperature range	T_{stg}	-40°C~125°C

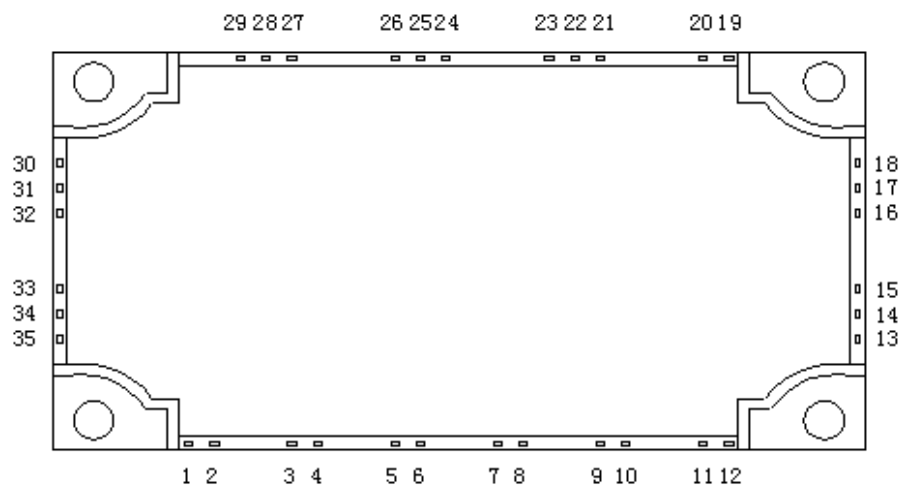
VI. Electrical Characteristics

Parameter	Notation	Conditions, unless otherwise specified ($T_A=25^\circ\text{C}$)	Limit value		Units
			Min.	Max.	
Collector voltage	V_{CES}	—	600	-	V
Collector-Emitter Cut-off Current (IGBT unit)	I_{CES}	$V_{CE}=600\text{V}$, $V_{GE}=0\text{V}$, $T_A=25^\circ\text{C}$	-	500	μA
		$V_{CE}=600\text{V}$, $V_{GE}=0\text{V}$, $T_A=125^\circ\text{C}$	-	5	mA
Gate-Emitter Threshold Voltage (IGBT unit)	$V_{GE(th)}$	$V_{CE}=V_{GE}$, $I_A=4\text{mA}$	5.0	7.0	V
Gate-Emitter Cut-off Current (IGBT unit)	I_{GES}	$V_{CE}=0\text{V}$, $V_{GE}=\pm 20\text{V}$,	-300	300	nA
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$	$V_{GE}=15\text{V}$, $I_C=200\text{A}$, $T_A=25^\circ\text{C}$, $T_A=125^\circ\text{C}$	-	3	V
Forward Diode Voltage (IGBT)	V_F	$I_F=200\text{A}$, $V_{GE}=0\text{V}$	-	2.5	V
Weight	g	—	-	350	g

VII. Product Outline Drawing

Max. outline dimensions: 123mm×63mm×21mm

VIII. Lead-out arrangement



Lead-out №	Name	Lead-out №	Name
1	U-phase upper arm (gate)	12	Lower arm
2	U-phase upper arm (ground)	16, 17, 18 30, 31, 32	Main electrode (+)
3	U-phase lower arm (gate)		
4	Lower arm (ground)	13, 14, 15 33, 34, 35	Main electrode (-)
5	V-phase upper arm (gate)		
6	V-phase upper arm (ground)	27, 28, 29	Main electrode U-phase
7	V-phase lower arm (gate)	24, 25, 26	Main electrode V-phase
8	Lower arm (ground)	21, 22, 23	Main electrode W-phase
9	W-phase upper arm (gate)	19	Thermistor terminal 1
10	W-phase upper arm (ground)	20	Thermistor terminal 2
11	W-phase lower arm (gate)		

IX. Precautions

1. This device is a static electricity sensitive device, pay attention to electrostatic prevention;
2. This device is a power device, pay attention to heat dissipation when using, so that the device shell temperature within the allowable range.

THG200GD06D IGBT Three-Phase Bridge Module

I. Product Characteristics

IGBT Three-Phase Bridge Module, with metal base plate and plastic shell package, adopts modular design. Combining the three technical advantages of high frequency, high voltage and high current, adopting universal design, our product can replace similar foreign products in terms of electrical characteristics, wiring mode and appearance.

II. Implementation standard and quality level

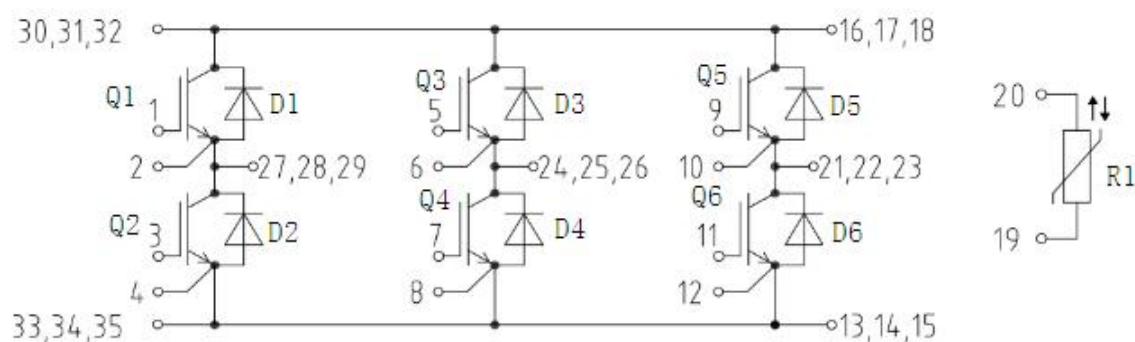
GJB2438A-2002 General Specification for Hybrid Integrated Circuits

Quality grade: military product

III. Main Uses

It is used for high power applications such as brushless DC motors and permanent magnet synchronous motors. It has a wide range of applications in the military fields of airborne, shipboard, radar and other follower systems and servo motor drives, high-power military power supplies and so on.

IV. Electrical schematic diagram

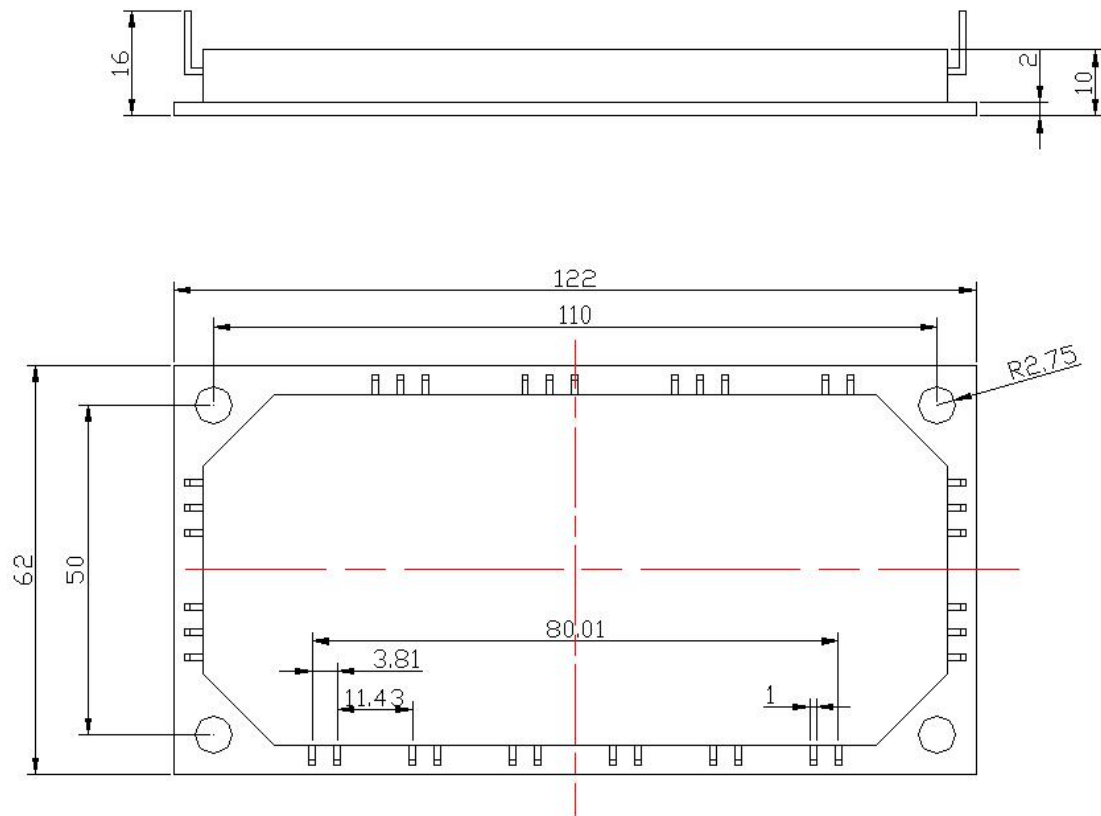


V. Electrical Characteristics

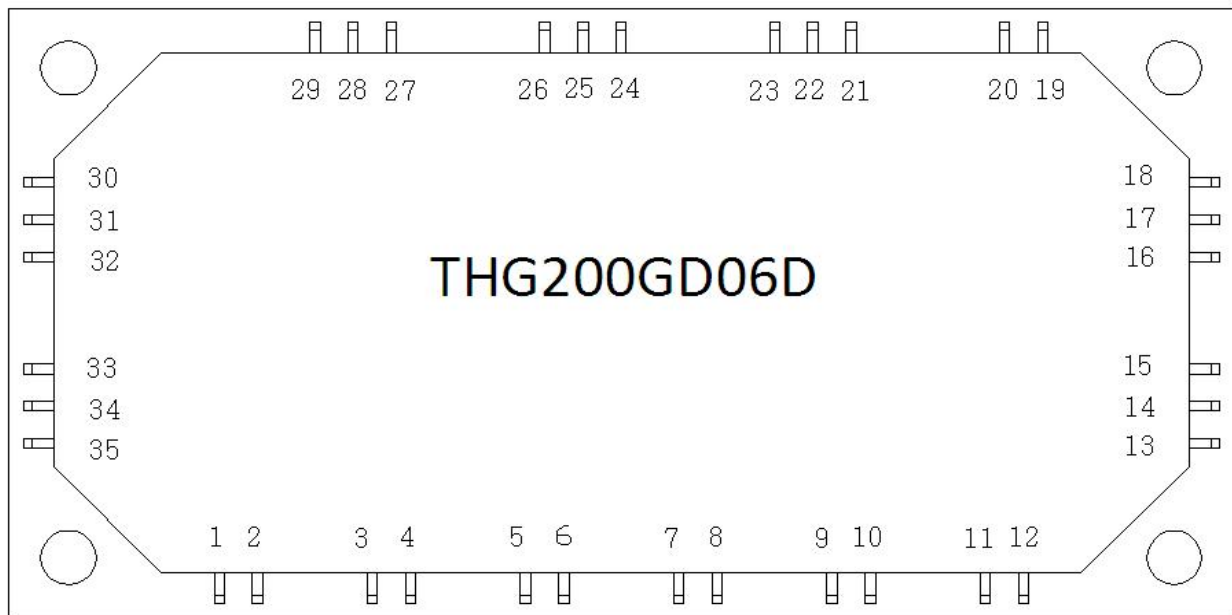
Parameter	Notation	Conditions, unless otherwise specified ($T_A=25^{\circ}\text{C}$)	Limit value		Units
			Min.	Max.	
Collector-Emitter Voltage	V_{CES}	—	600	-	V
Gate-Emitter Threshold Voltage (IGBT unit)	$V_{\text{GE(th)}}$	$V_{\text{GE}}=V_{\text{CE}}, I_{\text{C}}=3.2\text{mA}$	5.0	6.5	V
Gate-Emitter Cut-off Current (IGBT unit)	$I_{\text{GES (+)}}$	$V_{\text{CE}}=0\text{V}, V_{\text{GE}}=\pm 20\text{V}$	-	600	nA
	$I_{\text{GES (-)}}$		-600	-	
Collector-Emitter Saturation Voltage (IGBT unit)	$V_{\text{CE (sat)}}$	$I_{\text{C}}=280\text{A}, V_{\text{G}}=15\text{V}$	-	2.0	V
Collector-Emitter Cut-off Current (IGBT unit)	I_{CES}	$V_{\text{CES}}=600\text{V}$	-	5	uA
Forward voltage (Diode)	V_{F}	$I_{\text{F}}=200\text{A}, V_{\text{GE}}=0\text{V},$	-	2.5	V

VI. Product Outline Drawing

Outline dimensions: 122mm×62mm×10mm



VII. Lead-out arrangement



Lead-out №	Notation	Name	Lead-out №	Notation	Name
1	UG1	U-phase upper bridge arm (gate)	12	WGND2	W-phase lower bridge arm (ground)
2	UGND1	U-phase upper bridge arm (ground)	13~15	GND _O	Power Busbar Power Supply (ground)
3	UG2	U-phase lower bridge arm (gate)	16~18	V _H	Power Busbar Power Supply
4	UGND2	U-phase lower bridge arm (ground)	19	R11	Thermistor terminal 1
5	VG1	V-phase upper bridge arm (gate)	20	R12	Thermistor terminal 2
6	VGND1	V-phase upper bridge arm (ground)	21~23	V _{WOUT}	W-phase output
7	VG2	V-phase lower bridge arm (gate)	24~26	V _{VOUT}	V-phase output
8	VGND2	V-phase lower bridge arm (ground)	27~29	V _{UOUT}	U-phase output
9	WG1	W-phase upper bridge arm (gate)	30~32	V _H	Power Busbar Power Supply

10	WGND1	W-phase upper bridge arm (ground)	33~35	GND _o	Power Busbar Power Supply (ground)
11	WG2	W-phase lower bridge arm (gate)			

VIII. Precautions

This device is a power device, pay attention to heat dissipation when using, so that the device shell temperature within the allowable range.

THG200GD12D IGBT Three-Phase Bridge Module

I. Product Characteristics

IGBT Three-Phase Bridge Module, with metal base plate and plastic shell package, adopts modular design. Combining the three technical advantages of high frequency, high voltage and high current, adopting universal design, our product can replace similar foreign products in terms of electrical characteristics, wiring mode and appearance.

II. Implementation standard and quality level

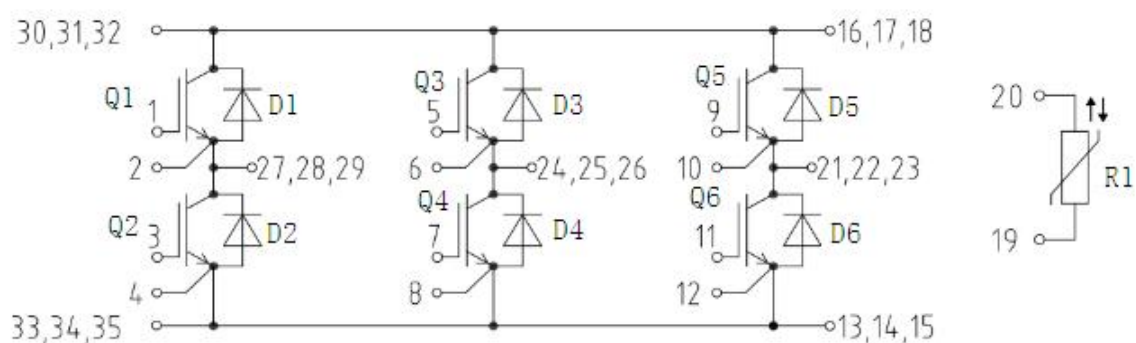
GJB2438A-2002 General Specification for Hybrid Integrated Circuits

Quality grade: military product

III. Main Uses

It is used for high power applications such as brushless DC motors and permanent magnet synchronous motors. It has a wide range of applications in the military fields of airborne, shipboard, radar and other follower systems and servo motor drives, high-power military power supplies and so on.

IV. Electrical schematic diagram



V. Electrical Characteristics

Parameter	Notation	Conditions, unless otherwise specified ($T_A=25^{\circ}\text{C}$)	Limit value		Units
			Min.	Max.	
Collector-Emitter Voltage	V_{CES}		1200	-	V
Gate-Emitter Threshold Voltage (IGBT unit)	$V_{\text{GE(th)}}$	$V_{\text{GE}}=V_{\text{CE}}, I_{\text{C}}=3.2\text{mA}$	5.0	6.5	V
Gate-Emitter Cut-off Current (IGBT unit)	$I_{\text{GES (+)}}$	$V_{\text{CE}}=0\text{V}, V_{\text{GE}}=\pm 20\text{V}$	-	600	nA
	$I_{\text{GES (-)}}$		-600	-	
Collector-Emitter Saturation Voltage (IGBT unit)	$V_{\text{CE (sat)}}$	$I_{\text{C}}=280\text{A}, V_{\text{G}}=15\text{V}$	-	2.0	V
Collector-Emitter Cut-off Current (IGBT unit)	I_{CES}	$V_{\text{CES}}=600\text{V}$	-	5	uA
Forward voltage (Diode)	V_{F}	$I_{\text{F}}=200\text{A}, V_{\text{GE}}=0\text{V},$	-	2.5	V

VI. Product Outline Drawing

Outline dimensions: 122mm×62mm×10mm

