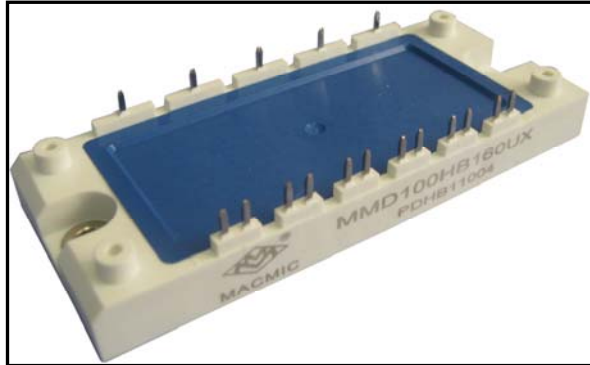


FEATURES

- ☐ Soldering connections for PCB mounting
- ☐ Convenient package outline
- ☐ Suitable for wave soldering
- ☐ High temperature and power cycling capability

APPLICATIONS

- ☐ Drive inverters with brake system



BRAKE SECTOR

ABSOLUTE MAXIMUM RATINGS

T_c=25°C unless otherwise specified

Symbol	Parameter	Test Conditions	Values	Unit
IGBT				
V _{CES}	Collector - Emitter Voltage	T _{vj} =25°C	1200	V
V _{GES}	Gate - Emitter Voltage		±20	V
I _c	DC Collector Current	T _c =25°C	80	A
		T _c =80°C	50	A
I _{CM}	Repetitive Peak Collector Current	t _p =1ms	100	A
P _{tot}	Power Dissipation Per IGBT		330	W
Diode				
V _{RRM}	Repetitive Reverse Voltage	T _{vj} =25°C	1200	V
I _{F(AV)}	Average Forward Current	T _c =25°C	75	A
		T _c =80°C	50	A
I _{F(RMS)}	RMS Forward Current		70	A
I _{FSM}	Non-Repetitive Surge Forward Current	T _{vj} =45°C, t=10ms, V _R =0V	350	A

BRAKE SECTOR**ELECTRICAL AND THERMAL CHARACTERISTICS***T_C=25°C unless otherwise specified*

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
IGBT						
V _{GE(th)}	Gate - Emitter Threshold Voltage	V _{CE} =V _{GE} , I _C =2.0mA	5.0	6.2	7.0	V
V _{CE(sat)}	Collector - Emitter Saturation Voltage	I _C =50A, V _{GE} =15V, T _{Vj} =25°C		1.8		V
		I _C =50A, V _{GE} =15V, T _{Vj} =125°C		2.0		V
I _{CES}	Collector Leakage Current	V _{CE} =1200V, V _{GE} =0V, T _{Vj} =25°C			1	mA
		V _{CE} =1200V, V _{GE} =0V, T _{Vj} =125°C			10	mA
I _{GES}	Gate Leakage Current	V _{CE} =0V, V _{GE} ±15V, T _{Vj} =125°C	-400		400	nA
R _{Gint}	Integrated Gate Resistor			10		Ω
Q _{ge}	Gate Charge	V _{CE} =600V, I _C =50A, V _{GE} =±15V		0.62		μC
C _{ies}	Input Capacitance	V _{CE} =25V, V _{GE} =0V, f=1MHz		4.29		nF
C _{res}	Reverse Transfer Capacitance			0.2		nF
t _{d(on)}	Turn - on Delay Time	V _{CC} =600V, I _C =50A, T _{Vj} =25°C		270		ns
		R _G =18Ω, T _{Vj} =125°C		290		ns
t _r	Rise Time	V _{GE} =±15V, T _{Vj} =25°C		60		ns
		Inductive Load, T _{Vj} =125°C		60		ns
t _{d(off)}	Turn - off Delay Time	V _{CC} =600V, I _C =50A, T _{Vj} =25°C		480		ns
		R _G =18Ω, T _{Vj} =125°C		550		ns
t _f	Fall Time	V _{GE} =±15V, T _{Vj} =25°C		60		ns
		Inductive Load, T _{Vj} =125°C		65		ns
E _{on}	Turn - on Energy	V _{CC} =600V, I _C =50A, T _{Vj} =25°C		6.0		mJ
		R _G =18Ω, T _{Vj} =125°C		8.4		mJ
E _{off}	Turn - off Energy	V _{GE} =±15V, T _{Vj} =25°C		3.7		mJ
		Inductive Load, T _{Vj} =125°C		5.8		mJ
I _{sc}	Short Circuit Current	t _{pse} ≤10μs, V _{GE} =15V T _{Vj} =125°C, V _{CC} =900V		270		A
R _{thJC}	Junction-to-Case Thermal Resistance (Per IGBT)				0.38	K /W
Diode						
V _F	Forward Voltage	I _F =50A, V _{GE} =0V, T _{Vj} =25°C		1.9		V
		I _F =50A, V _{GE} =0V, T _{Vj} =125°C		1.7		V
t _{rr}	Reverse Recovery Time	I _F =50A, V _R =800V		180		ns
I _{RRM}	Max. Reverse Recovery Current	di _F /dt=-1000A/μs		60		A
Q _{rr}	Reverse Recovery Charge	T _{Vj} =125°C		7.1		μC
R _{thJCD}	Junction-to-Case Thermal Resistance (Per Diode)				0.8	K /W

DIODE-RECTIFIER SECTOR**ABSOLUTE MAXIMUM RATINGS***T_C=25°C unless otherwise specified*

Symbol	Parameter	Test Conditions	Values	Unit
V _{RRM}	Repetitive Reverse Voltage	T _{VJ} =25°C	1600	V
I _D	Output Current	T _C =100°C	100	A
I _{F(RMS)}	RMS Forward Current (per chip)		60	A
I _{FSM}	Forward Surge Current	T _{VJ} =25°C, t=10ms	650	A
I ² t		T _{VJ} =25°C, t=10ms	2100	A ² s

DIODE-RECTIFIER SECTOR**ELECTRICAL AND THERMAL CHARACTERISTICS***T_C=25°C unless otherwise specified*

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
V _F	Forward Voltage	I _F =100A, T _{VJ} =125°C		1.25	1.55	V
I _{RM}	Reverse Leakage Current	V _R =1600V, T _{VJ} =125°C			2	mA
R _{thJCD}	Junction-to-Case Thermal Resistance (Per Diode)				1.1	K /W

MODULE CHARACTERISTICS*T_C=25°C unless otherwise specified*

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
T _{VJ max}	Max. Junction Temperature		-40		150	°C
T _{stg}	Storage Temperature		-40		125	°C
V _{isol}	Insulation Test Voltage	AC, t=1min		3000		V
Torque	Module-to-Sink	Recommended (M5)	2.5		5	N · m
Weight				190		g

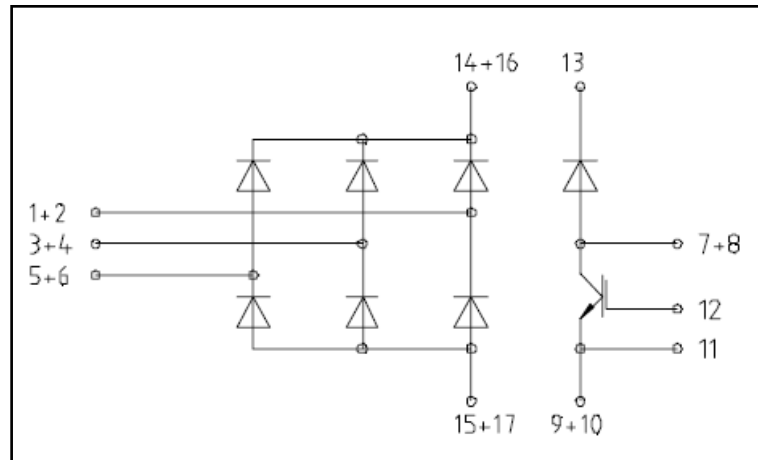


Figure1. Circuit Diagram

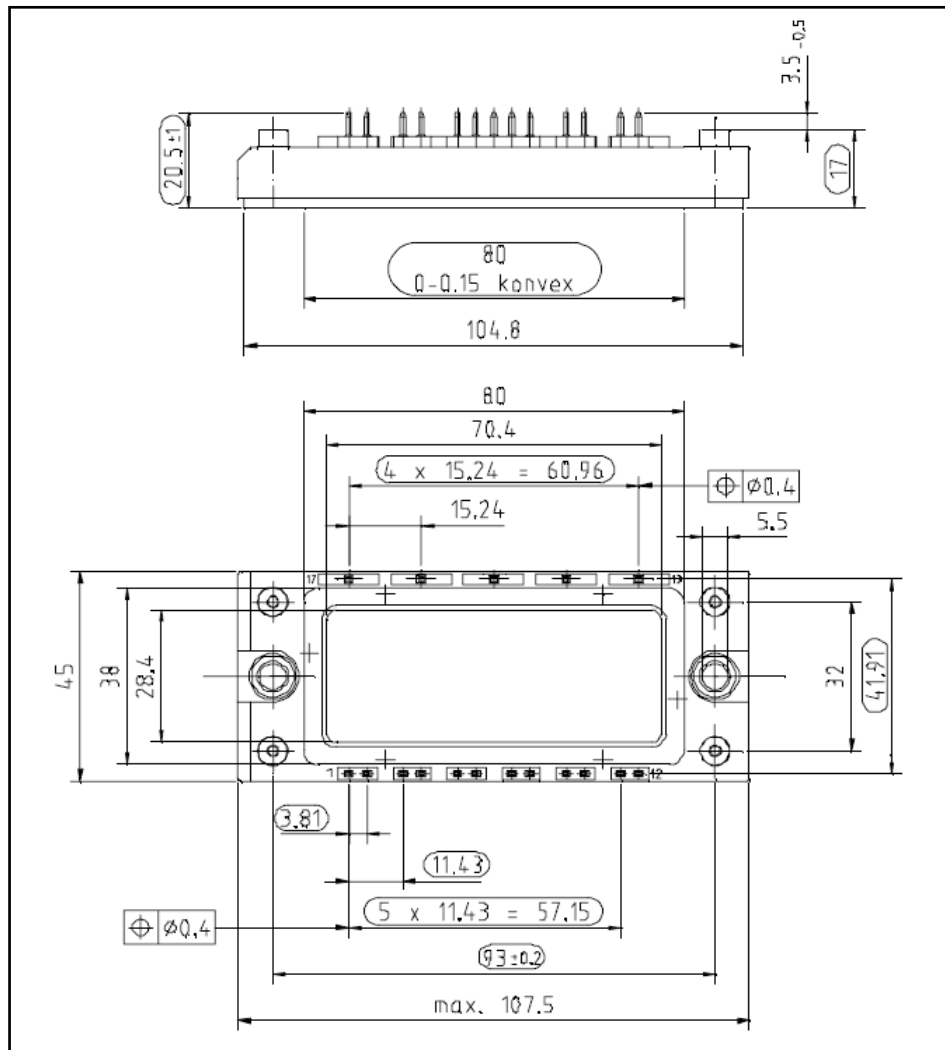


Figure2. Package Outlines (Dimensions in mm)