

PRELIMINARY
 Notice: This is not a final specification.
 Some parametric limits are subject to change.

MITSUBISHI HVIGBT MODULES

CM600E2Y-34H

HVIGBT (High Voltage Insulated Gate Bipolar Transistor) Modules

HIGH POWER SWITCHING USE
 INSULATED TYPE

CM600E2Y-34H

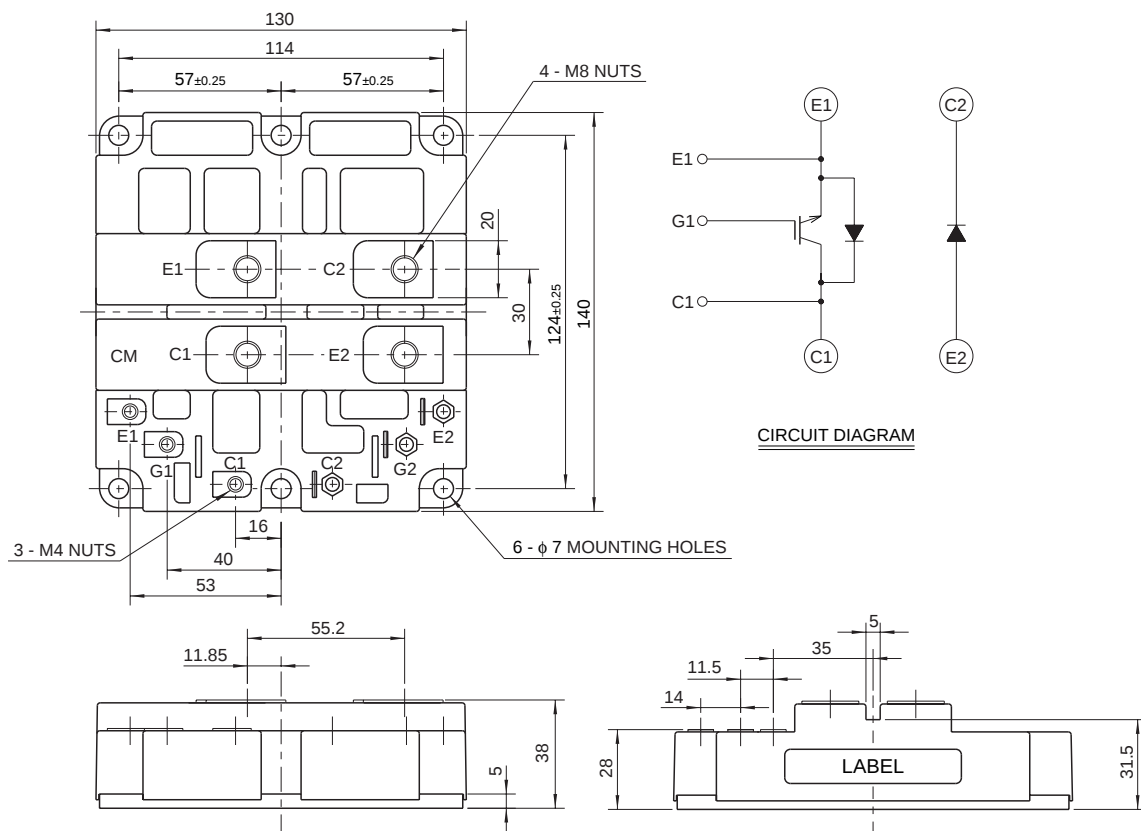
- IC 600A
- VCES 1700V
- Insulated Type
- 1-elements in a pack (for brake)

APPLICATION

DC choppers, Dynamic braking choppers.

OUTLINE DRAWING & CIRCUIT DIAGRAM

Dimensions in mm



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Feb.1999

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MAXIMUM RATINGS (Tj = 25°C)

Symbol	Parameter	Conditions	Ratings	Unit
V _{CES}	Collector-emitter voltage	G-E Short	1700	V
V _{GES}	Gate-emitter voltage	C-E Short	±20	V
I _C	Collector current	T _C = 25°C	600	A
I _{CM}		Pulse (Note 2)	1200	A
I _E (Note 1)	Emitter current	T _C = 25°C	600	A
I _{EM} (Note 1)		Pulse (Note 2)	1200	A
P _C (Note 3)	Maximum collector dissipation	T _C = 25°C	6250	W
T _j	Junction temperature		−40 ~ +150	°C
T _{stg}	Storage temperature		−40 ~ +125	°C
V _{iso}	Isolation voltage	Main terminal to Base, AC for 1 minute	4000	V
—	Mounting torque	Main terminals screw M8	6.67 ~ 13.00	N·m
		Mounting screw M6	2.84 ~ 6.00	N·m
		Auxiliary terminals screw M4	0.88 ~ 2.00	N·m
—	Weight	Typical value	1.5	kg

ELECTRICAL CHARACTERISTICS (Tj = 25°C)

Symbol	Parameter	Test conditions		Limits			Unit
				Min	Typ	Max	
ICES	Collector cutoff current	VCE = VCES, VGE = 0V		—	—	15	mA
VGE(th)	Gate-emitter threshold voltage	IC = 60mA, VCE = 10V		4.5	6.0	7.5	V
IGES	Gate-leakage current	VGE = VGES, VCE = 0V		—	—	0.5	μA
VCE(sat)	Collector-emitter saturation voltage	Tj = 25°C	IC = 600A, VGE = 15V (Note 4)	—	2.75	3.58	V
		Tj = 125°C		—	3.30	—	
Cies	Input capacitance	VCE = 10V VGE = 0V		—	70	—	nF
Coes	Output capacitance			—	10.0	—	nF
Cres	Reverse transfer capacitance			—	3.8	—	nF
QG	Total gate charge	VCC = 850V, IC = 600A, VGE = 15V		—	6	—	μC
td (on)	Turn-on delay time	VCC = 850V, IC = 600A		—	—	1.20	μs
tr	Turn-on rise time	VGE1 = VGE2 = 15V		—	—	1.50	μs
td (off)	Turn-off delay time	RG = 3.3Ω		—	—	2.00	μs
tf	Turn-off fall time	Resistive load switching operation		—	—	0.60	μs
VEC (Note 1)	Emitter-collector voltage	IE = 600A, VGE = 0V		—	2.40	3.12	V
t _{rr} (Note 1)	Reverse recovery time	IE = 600A		—	—	2.00	μs
Q _{rr} (Note 1)	Reverse recovery charge	die / dt = −1200A / μs		—	100	—	μC
Rth(j-c)Q	Thermal resistance	IGBT part		—	—	0.020	°C/W
Rth(j-c)R		FWDi part		—	—	0.064	°C/W
Rth(c-f)	Contact thermal resistance	Case to fin, conductive grease applied (Per 1/2 module)		—	0.016	—	°C/W
VFM	Forward voltage	If = 600A, Clamp diode part		—	2.60	3.38	V
t _{rr}	Reverse recovery time	If = 600A		—	—	2.00	μs
Q _{rr}	Reverse recovery charge	diF / dt = −1200A / μs, Clamp diode part		—	100	—	μC
Rth(j-c)	Thermal resistance	Clamp diode part		—	—	0.064	°C/W
Rth(c-f)	Contact thermal resistance	Case to fin, conductive grease applied (Per 1/2 module)		—	0.016	—	°C/W

Note 1. I_E, V_{EC}, t_{rr}, Q_{rr} & di_F/dt represent characteristics of the anti-parallel, emitter to collector free-wheel diode.

2. Pulse width and repetition rate should be such that the device junction temp. (T_j) does not exceed T_{jmax} rating.

3. Junction temperature (T_j) should not increase beyond 150°C.

4. Pulse width and repetition rate should be such as to cause negligible temperature rise.

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