

<DIODE Modules>

RM800DY-34S

HIGH POWER SWITCHING USE
INSULATED TYPE



dual pack

Forward current I_{DC} **800 A**
 Repetitive peak reverse voltage V_{RRM} **1700 V**
 Maximum junction temperature T_{vjmax} **175 °C**

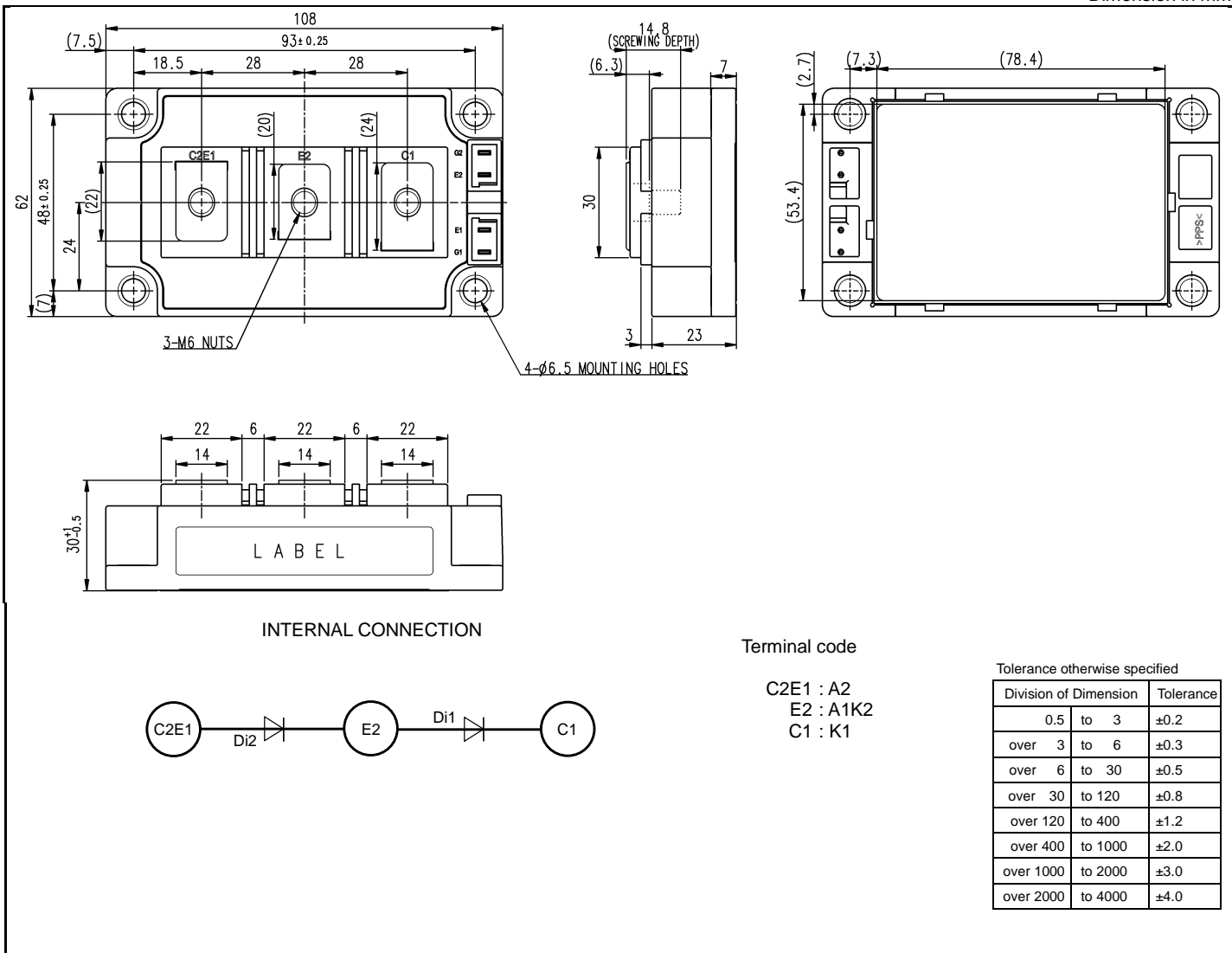
- Flat base Type
- Copper base plate
- RoHS Directive compliant
- UL Recognized under UL1557, File No. E323585

APPLICATION

AC Motor Control, Motion/Servo Control, Power supply, Photovoltaic power, Wind power, etc.

OUTLINE DRAWING & INTERNAL CONNECTION

Dimension in mm



RM800DY-34SHIGH POWER SWITCHING USE
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Symbol	Item	Conditions	Rating	Unit
V _{RRM}	Repetitive peak reverse voltage	-	1700	V
V _{RSM}	Non-repetitive peak reverse voltage	-	1700	V
V _{R(DC)}	Reverse DC blocking voltage	-	1360	V
I _{DC}	Forward current	DC (Note1)	800	A
I _{FSM}	Surge non-repetitive forward current	1 cycle of half wave at 60 Hz, peak value, T _{vj} =25 °C start, V _{RM} =0 V	4000	A
I ² t	Current square time for fusing	t _w =8.3 ms, T _{vj} =25 °C start, Value for one cycle of surge current	6.0 × 10 ⁴	A ² s
V _{isol}	Isolation voltage	Terminals to base plate, RMS, f=60 Hz, AC 1 min	4000	V
T _{vjmax}	Maximum junction temperature	Instantaneous event (overload)	175	°C
T _{Cmax}	Maximum case temperature	(Note2)	125	
T _{vjop}	Operating junction temperature	Continuous operation (under switching)	-40 ~ +150	°C
T _{stg}	Storage temperature	-	-40 ~ +125	

ELECTRICAL CHARACTERISTICS (T_{vj}=25 °C, unless otherwise specified)

Symbol	Item	Conditions		Limits			Unit
				Min.	Typ.	Max.	
I _{RRM}	Reverse current	V _R =V _{RRM} , T _{vj} =150 °C		-	-	50	mA
V _F (Terminal)	Forward voltage	I _F =800 A, t _w ≤1 ms, Refer to the figure of test circuit	T _{vj} =25 °C	-	2.25	2.75	V
			T _{vj} =125 °C	-	2.35	-	
				T _{vj} =150 °C	-	2.30	
V _F (Chip)		I _F =800 A, t _w ≤1 ms		-	2.00	2.50	V
t _{rr}	Reverse recovery time	V _{CC} =1000 V, I _F =800 A,		-	-	500	ns
Q _{rr}	Reverse recovery charge	-diF/dt=4000 kA/μs,		-	160	-	μC
E _{rr}	Reverse recovery energy per pulse	Inductive load		-	104	-	mJ

THERMAL RESISTANCE CHARACTERISTICS

Symbol	Item	Conditions	Limits			Unit
			Min.	Typ.	Max.	
R _{th(j-c)}	Thermal resistance	Junction to case (Note2)	-	-	20	K/kW
R _{th(c-s)}	Contact thermal resistance	Case to heat sink, Thermal grease applied (Note2, 4)	-	13.3	-	K/kW

MECHANICAL CHARACTERISTICS

Symbol	Item	Conditions	Limits			Unit
			Min.	Typ.	Max.	
M _t	Mounting torque	Main terminals M 6 screw	3.5	4.0	4.5	N·m
M _s	Mounting torque	Mounting to heat sink M 6 screw	3.5	4.0	4.5	N·m
d _s	Creepage distance	Terminal to terminal	-	-	-	mm
		Terminal to base plate	-	-	-	
d _a	Clearance	Terminal to terminal	-	-	-	mm
		Terminal to base plate	-	-	-	
e _c	Flatness of base plate	On the centerline X, Y (Note5)	0	-	+200	μm
m	mass	-	-	260	-	g

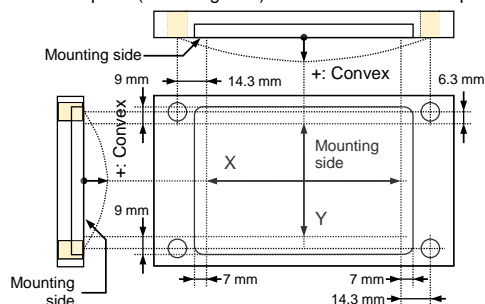
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HIGH POWER SWITCHING USE
INSULATED TYPE

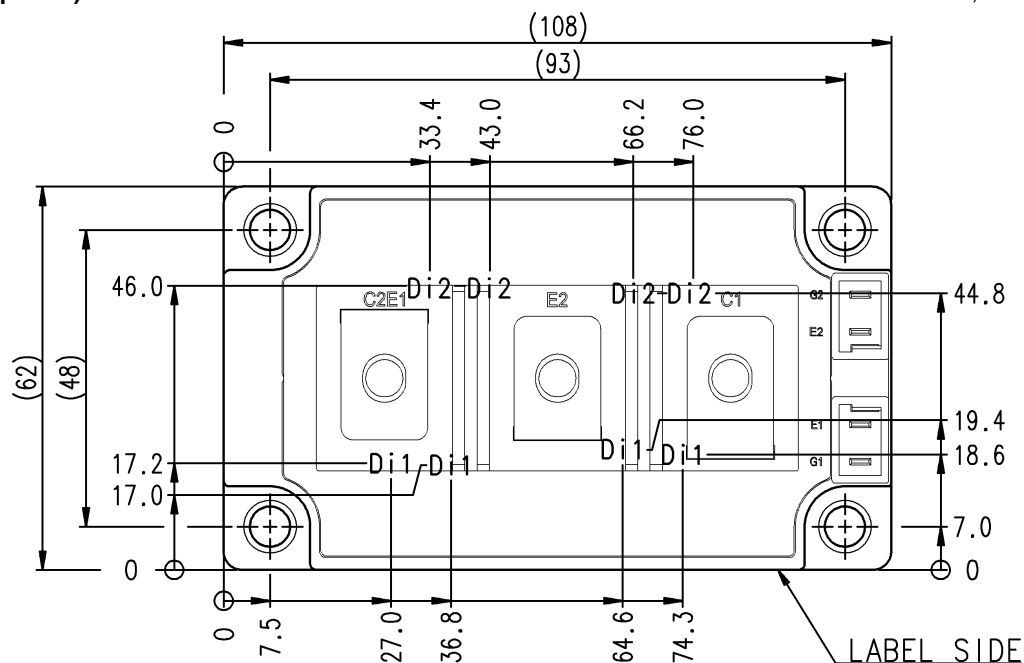
*: This product is compliant with the Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment (RoHS) directive 2011/65/EU.

Note1. Junction temperature (T_{vj}) should not exceed T_{vjmax} rating.

- Case temperature (T_c) and heat sink temperature (T_s) are defined on the each surface (mounting side) of base plate and heat sink just under the chips. Refer to the figure of chip location.
- Pulse width and repetition rate should be such as to cause negligible temperature rise. Refer to the figure of test circuit.
- Typical value is measured by using thermally conductive grease of $\lambda=3.0 \text{ W/(m}\cdot\text{K)}/D_{(C-S)}=50 \text{ }\mu\text{m}$.
- The base plate (mounting side) flatness measurement points (X, Y) are shown in the following figure.

**CHIP LOCATION (Top view)**

Dimension in mm, tolerance: $\pm 1 \text{ mm}$

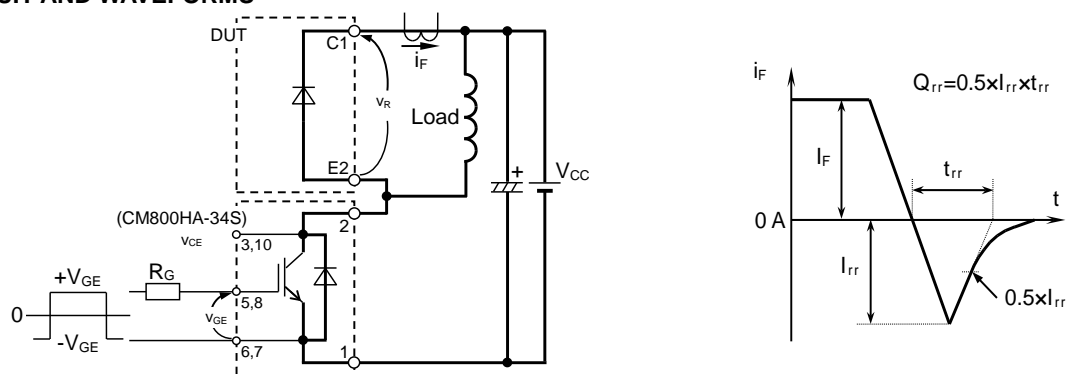


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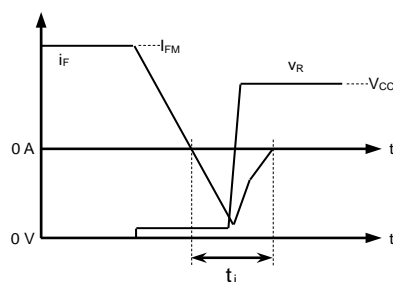
HIGH POWER SWITCHING USE

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TEST CIRCUIT AND WAVEFORMS

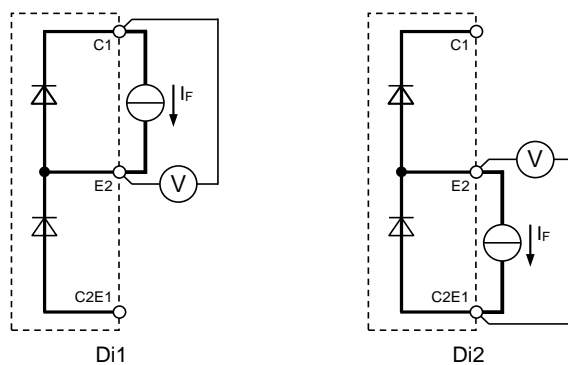


t_{rr} , Q_{rr} characteristics test circuit and waveforms

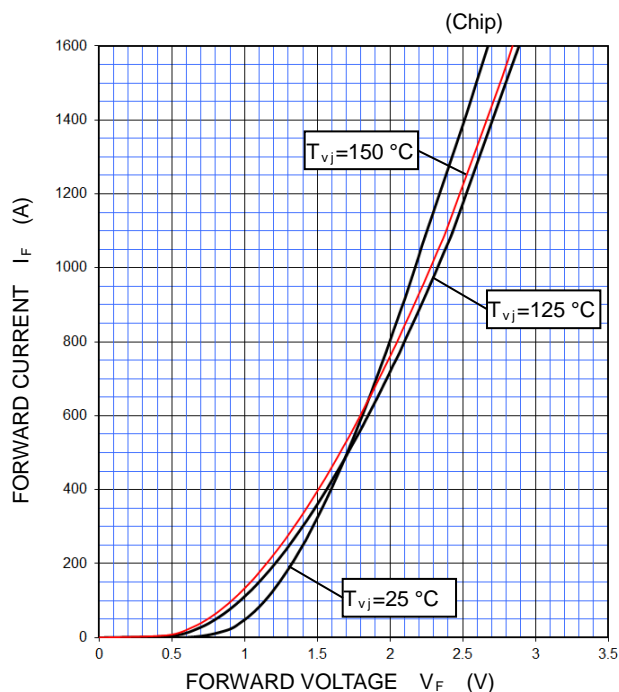
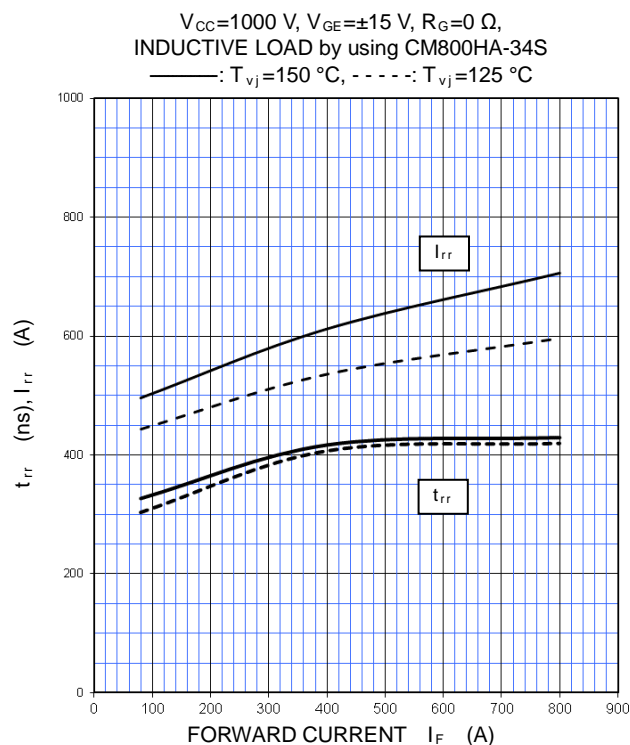
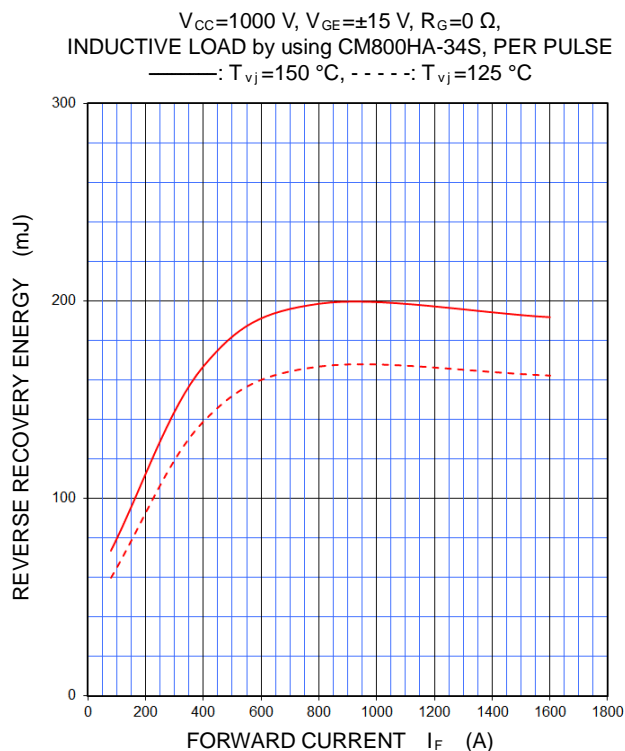
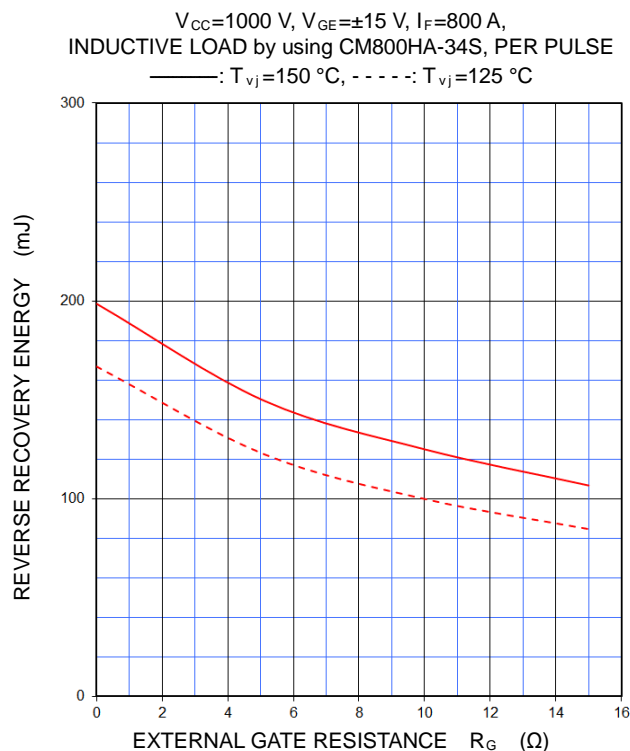


Reverse recovery energy test waveforms (Integral time instruction drawing)

TEST CIRCUIT



V_F characteristics test circuit

PERFORMANCE CURVES**FORWARD CHARACTERISTICS
(TYPICAL)****REVERSE RECOVERY CHARACTERISTICS
(TYPICAL)****HALF-BRIDGE SWITCHING CHARACTERISTICS
(TYPICAL)****HALF-BRIDGE SWITCHING CHARACTERISTICS
(TYPICAL)**

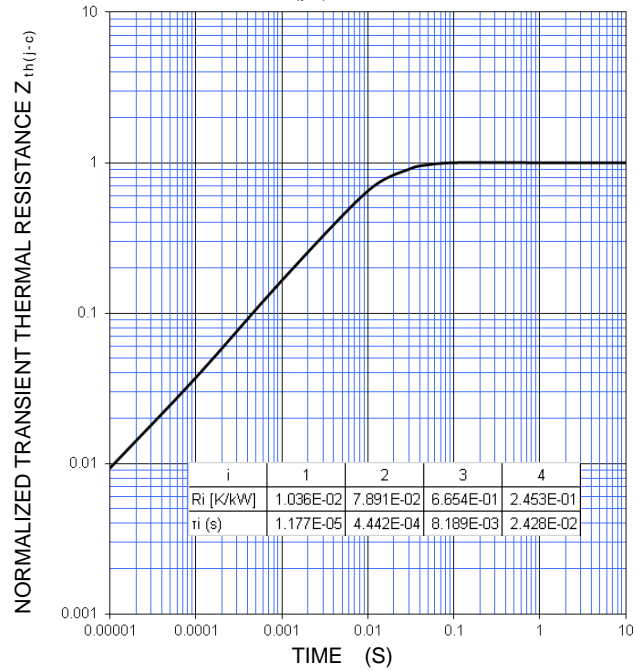
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HIGH POWER SWITCHING USE
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PERFORMANCE CURVES

TRANSIENT THERMAL IMPEDANCE CHARACTERISTICS
(MAXIMUM)

Single pulse, $T_c=25\text{ }^{\circ}\text{C}$
 $R_{th(j-c)}=20\text{ K/kW}$



Note: The characteristics curves are presented for reference only and not guaranteed by production test, unless otherwise noted.

Keep safety first in your circuit designs!

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