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THYRISTOR MODULE
PWA150SA

FEATURES

- **IT(AV) 90A (each device)**
- **High surge current 1800A (60H_z)**
- **Easy Construction**
- **Non-insulated Mounting base as common**
- **Anode Terminal**

TYPICAL APPLICATIONS

- **Welders**
- **Various DC power supply**

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TECHNICAL DATA

DEVICE TYPE

	V_{RRM} (V)	V_{RSM} (V)
PWA150SA-3	300	400
PWA150SA-4	400	500
PWA150SA-6	600	700

ABSOLUTE MAXIMUM RATINGS

SYMBOL	PARAMETER	CONDITION	RATINGS	UNIT
$I_{T(RMS)}$	RMS on-state current		230	A
$I_{T(AV)}$	Average on-state current	Three-phase, half-wave, T_C=119°C	150	A
I_{TSM}	Surge (non-repetitive) on-state current	One half cycle at 60Hz, peak value	3000	A
I^2t	I^2t for fusing	Value for one cycle of surge current	3.8×10^5	A^2s
di/dt	Critical rate of rise of on-state current	V_D=1/2V_{DRM}, I_G=1.0A, T_j=150°C	100	A/μs
P_{GM}	Peak gate power dissipation		5.0	W
$P_{G(AV)}$	Average gate power dissipation		0.5	W
V_{FGM}	Peak gate forward voltage		10	V
V_{RGM}	Peak gate reverse voltage		5.0	V
I_{FGM}	Peak gate forward current		2.0	A
T_j	Junction temperature		–40~+150	°C
T_{stg}	Storage temperature		–40~+125	°C
—	Mounting torque	Main terminal screw M8	8.83~10..8	N·m
			90~110	kg·cm
		Mounting screw M6	1.96~2.94	N·m
			20~30	kg·cm
—	Weight	Typical value	250	g

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ELECTRICAL CHARACTERISTICS OF IGBT

SYMBOL	PARAMETER	TEST CONDITION	LIMITS			UNIT
			MIN	TYP	MAX	
IRRM	Repetitive peak reverse current	Tj=150°C, VRRM applied	—	—	40	mA
IDRM	Repetitive peak off-state current	Tj=150°C, VDRM applied	—	—	40	mA
VTM	On-state voltage	Tj=150°C, ITM=450A, instantaneous meas.	—	—	1.2	V
dv/dt	Critical rate of rise of off-state voltage	Tj=150°C, VD=2/3VDRM	200	—	—	V/μs
VGT	Gate trigger voltage	Tj=25°C, VD=6V, RL=2Ω	—	—	3.0	V
VGD	Gate non-trigger voltage	Tj=150°C, VD=1/2VDRM	0.25	—	—	V
IGT	Gate trigger current	Tj=25°C, VD=6V, RL=2Ω	15	—	100	mA
Rth (j-c)	Thermal resistance	Junction to case (per 1/3 module)	—	—	0.15	°C/W
Rth (c-f)	Contact thermal resistance	Case to fin, conductive grease applied (per 1/3 module)	—	—	0.15	°C/W

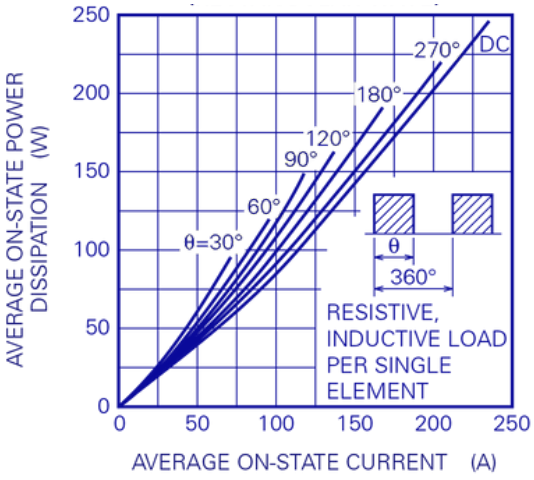

FIG. **1** **maximum average on-state power dissipation (rectangular wave)**

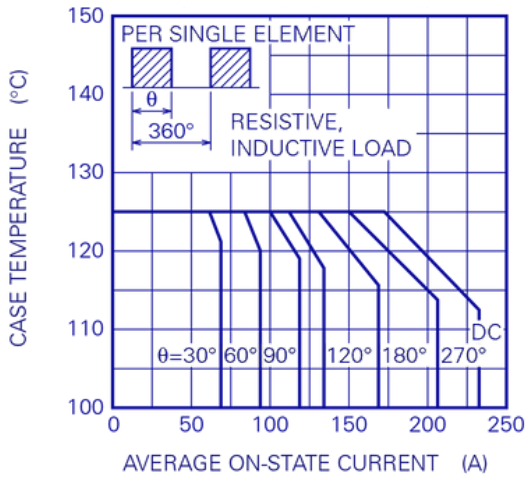

FIG. **2** **limiting value of the average on-state current (rectangular wave)**

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PWA150SA

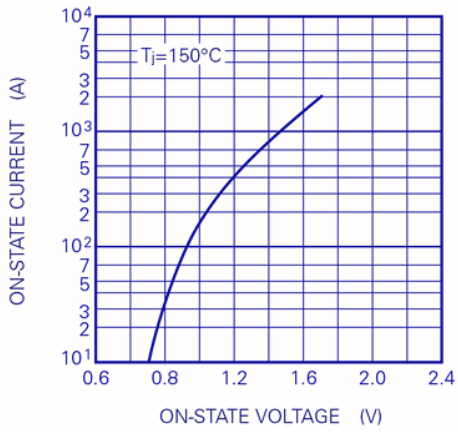
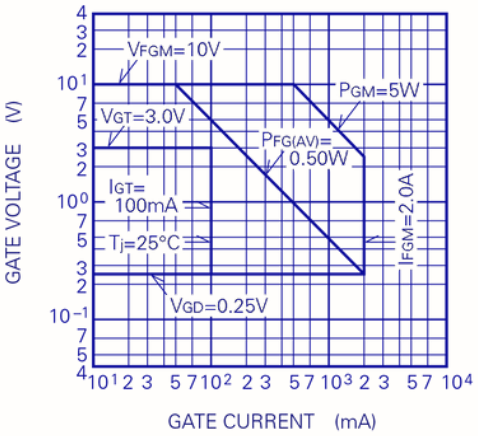


FIG. **3** maximum on-state characteristic

FIG. **4** gate characteristics



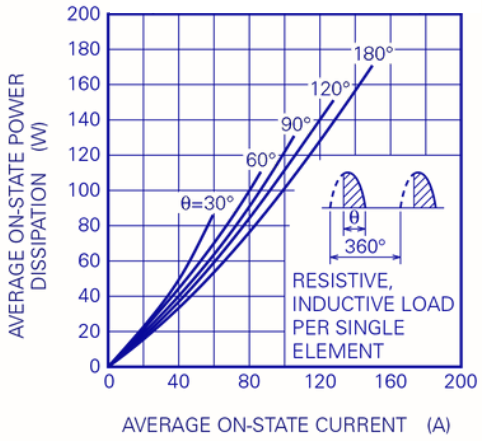


FIG. **5** maximum average on-state power dissipation (single phase halfwave)

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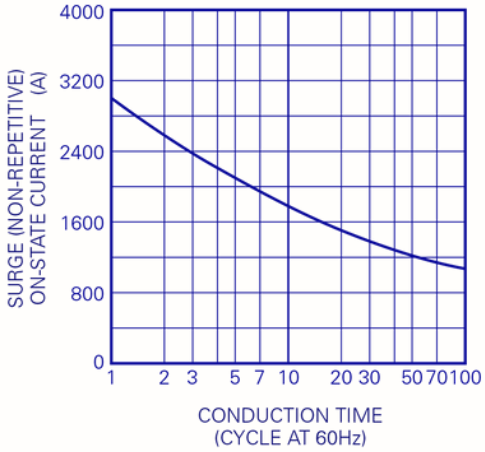
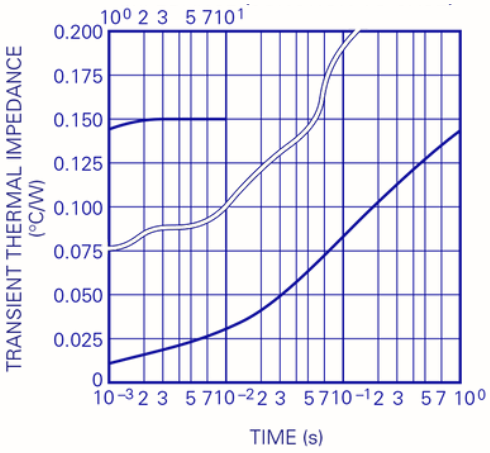


FIG.**6** **rated surge (non-repetitive) on-state current**

FIG. **7** **maximum transient thermal impedance (junction to case)**



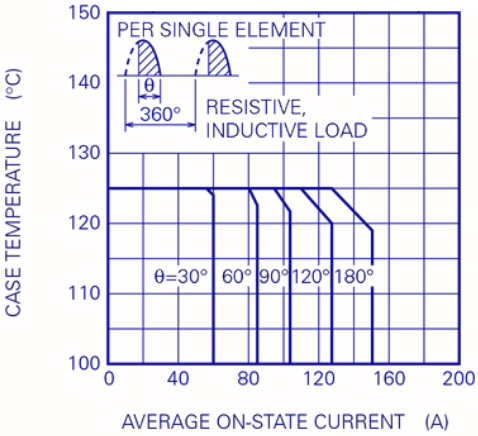


FIG.**8** **limiting value of the average on-state current (single phase halfwave)**

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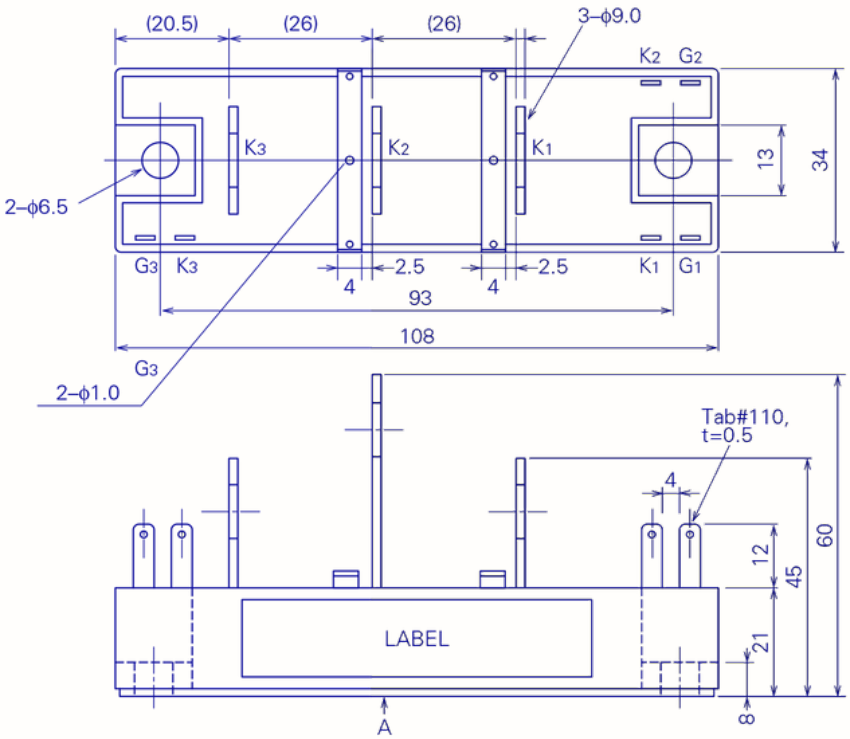
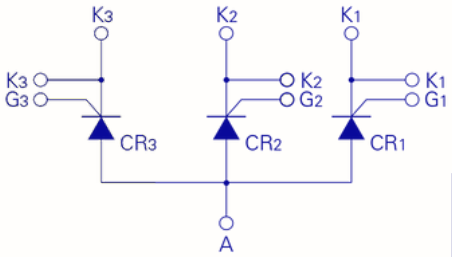
PACKAGE OUTLINE





all dimensions in mm