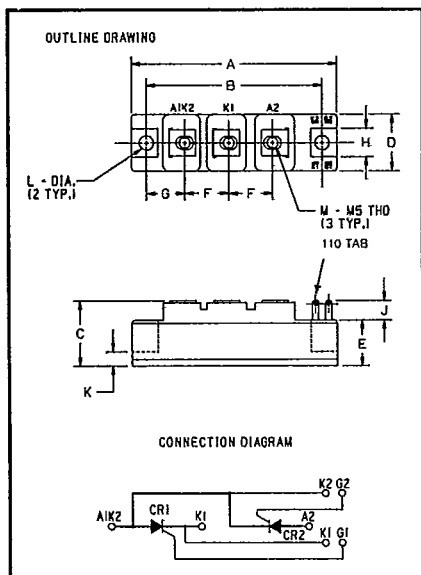




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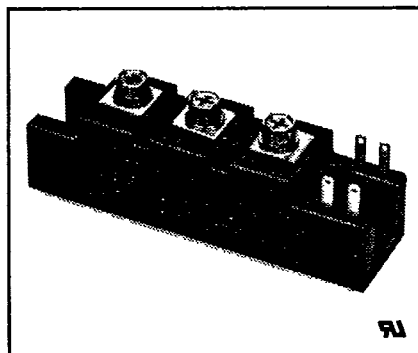
CM430455
CM430855

Dual SCR
POW-R-BLOK™ Modules
55 Amperes/400-800 Volts



**400-800 Volts CM430455,
 CM430855 Outline Drawing**

Dimension	Inches	Millimeters
A	3.681 Max.	93.5 Max.
B	3.150	80
C	1.181 Max.	30 Max.
D	1.024 Max.	26 Max.
E	.827	21
F	.787	20
G	.689	17.5
H	.492	12.5
J	.354	9
K	.256	6.5
L	.256 Dia.	Dia. 6.5
M	M5 Metric	M5



CM430455, CM430855
Dual SCR POW-R-BLOK™ Modules
55 Amperes/400-800 Volts

Description

Powerex Dual SCR POW-R-BLOK™ Modules are designed for use in applications requiring phase control and isolated packaging. The modules are isolated for easy mounting with other components on common heatsinks.

Features:

- ☐ Isolated Mounting
- ☐ Glass Passivated Chips
- ☐ Metal Baseplate
- ☐ Low Thermal Impedance
- ☐ UL Recognized

Applications:

- ☐ Battery Supplies
- ☐ Bridge Circuits
- ☐ AC and DC Motor Control
- ☐ Tap Changers
- ☐ Lighting Control

Ordering Information

Example: Select the complete eight digit module part number you desire from the table — i.e. CM430855 is an 800 Volt, 55 Ampere Dual SCR POW-R-BLOK™ Module.

Type	Voltage Volts (x100)	Current Rating Amperes (55)
CM43	04 08	55



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Dual SCR POW-R-BLOK™ Modules
 55 Amperes/400-800 Volts

Absolute Maximum Ratings

Characteristics	Symbol	CM430455	CM430855	Units
Peak Forward Blocking Voltage	V_{DRM}	400	800	Volts
Transient Peak Forward Blocking Voltage (Non-Repetitive) $t < 5$ ms	V_{DSM}	480	960	Volts
DC Forward Blocking Voltage	$V_{D(DC)}$	320	640	Volts
Peak Reverse Blocking Voltage	V_{RRM}	400	800	Volts
Transient Peak Reverse Blocking Voltage (Non-Repetitive) $t < 5$ ms	V_{RSM}	480	960	Volts
DC Reverse Blocking Voltage	$V_{R(DC)}$	320	640	Volts
RMS On-State Current	$I_{T(RMS)}$	86	86	Amperes
Average On-State Current, $T_C = 86^\circ\text{C}$	$I_{T(AV)}$	55	55	Amperes
Peak One-Cycle Surge (Non-Repetitive) On-State Current (60Hz)	I_{TSM}	1100	1100	Amperes
Peak One-Cycle Surge (Non-Repetitive) On-State Current (50Hz)	I_{TSM}	1000	1000	Amperes
I^2t (for Fusing), 8.3 milliseconds	I^2t	5000	5000	A^2sec
Critical Rate-of-Rise of On-State Current ①	di/dt	100	100	Amperes/ μs
Peak Gate Power Dissipation	P_{GM}	5.0	5.0	Watts
Average Gate Power Dissipation	$P_{G(AV)}$	0.5	0.5	Watts
Peak Forward Gate Voltage	V_{GFM}	10	10	Volts
Peak Reverse Gate Voltage	V_{GRM}	5.0	5.0	Volts
Peak Forward Gate Current	I_{GFM}	2.0	2.0	Amperes
Storage Temperature	T_{STG}	-40 to 125	-40 to 125	$^\circ\text{C}$
Operating Temperature	T_J	-40 to 125	-40 to 125	$^\circ\text{C}$
Maximum Mounting Torque M6 Mounting Screw	—	26	26	in.-lb.
Maximum Terminal Torque M5 Terminal Screw	—	17	17	in.-lb.
Module Weight (Typical)	—	160	160	Grams
V Isolation	V_{RMS}	2000	2000	Volts

① $T_J = 125^\circ\text{C}$, $I_G = 1.0$ A, $V_D = 1/2 V_{DRM}$

Electrical and Thermal Characteristics, $T_J = 25^\circ\text{C}$ unless otherwise specified

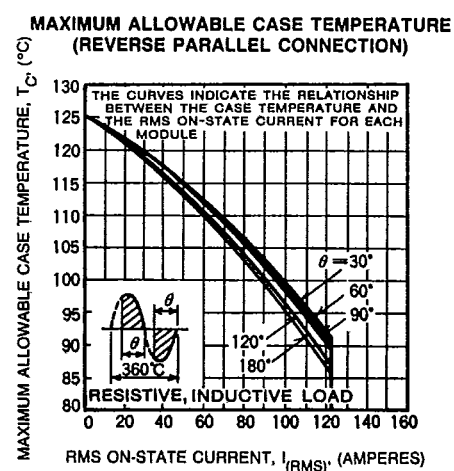
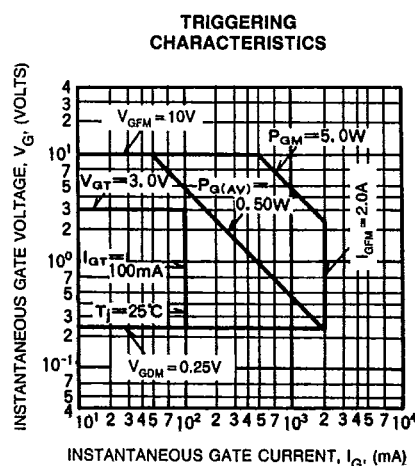
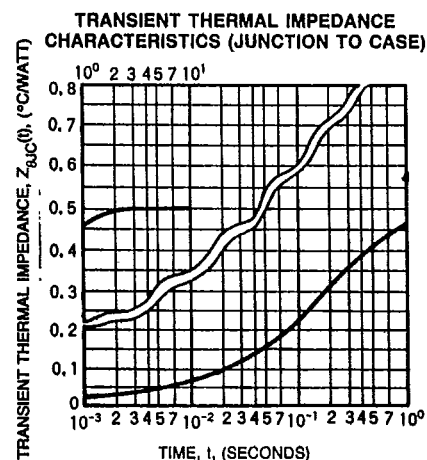
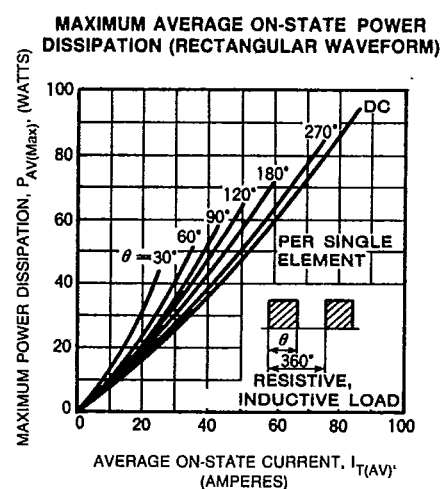
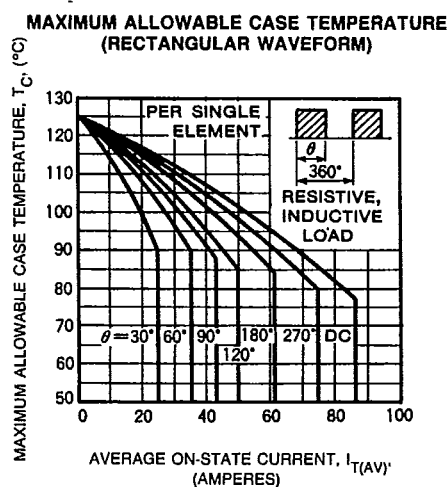
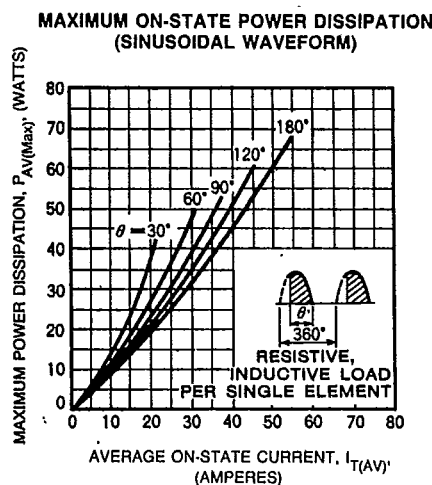
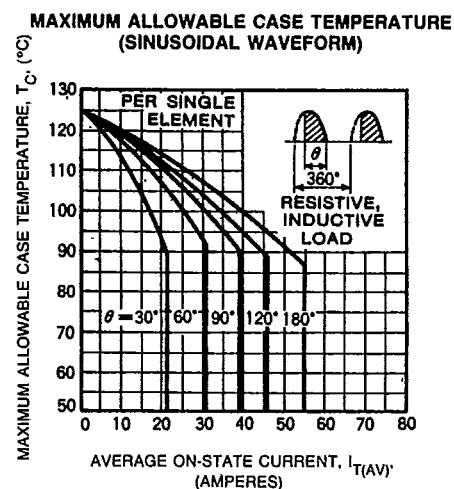
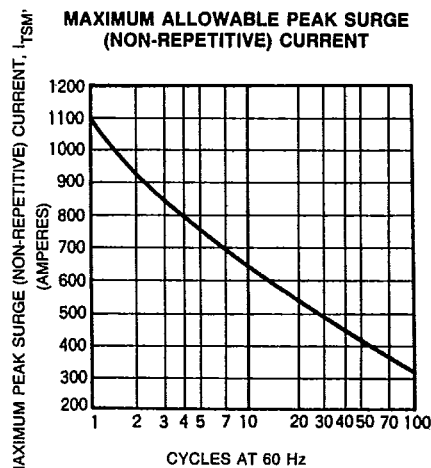
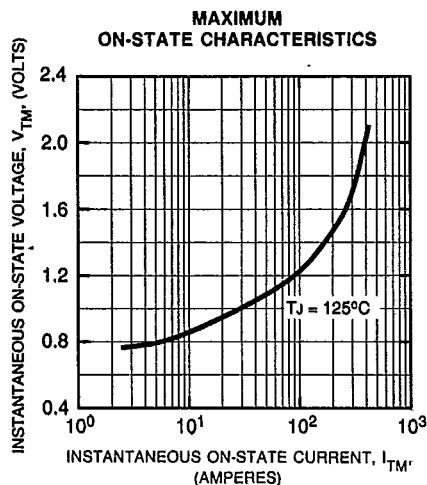
Characteristic	Symbol	Test Conditions	CM4304A2	CM4308A2	Units
Blocking State Maximums					
Forward Leakage Current, Peak	I_{DRM}	$T_J = 125^\circ\text{C}$, $V_{DRM} = \text{rated}$	10		mA
Reverse Leakage Current, Peak	I_{RRM}	$T_J = 125^\circ\text{C}$, $V_{RRM} = \text{rated}$	10		mA
Conducting State Maximums					
Peak On-State Voltage	V_{TM}	$I_{TM} = 165\text{A}$		1.35	Volts
Switching Minimums					
Critical Rate of Rise of Off-State Voltage	dv/dt	$T_J = 125^\circ\text{C}$, $V_D = 2/3 V_{DRM}$	500		Volts/ μsec
Thermal Maximums					
Thermal Resistance, Junction to Case	$R_{\theta JC}$	Per Device	0.5		$^\circ\text{C}/\text{Watt}$
Thermal Resistance, Case to Sink Lubricated	$R_{\theta CS}$	Per Device	0.2		$^\circ\text{C}/\text{Watt}$
Gate Parameters Maximums					
Gate Current to Trigger	I_{GT}	$V_D = 6$ V, $R_L = 2 \Omega$	100		mA
Gate Voltage to Trigger	V_{GT}	$V_D = 6$ V, $R_L = 2 \Omega$	3.0		Volts
Non-Triggering Gate Voltage	V_{GDM}	$T_J = 125^\circ\text{C}$, $V_D = 1/2 V_{DRM}$	0.25		Volts



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Dual SCR POW-R-BLOK™ Modules
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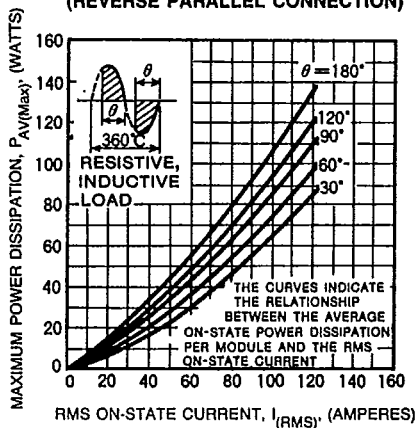


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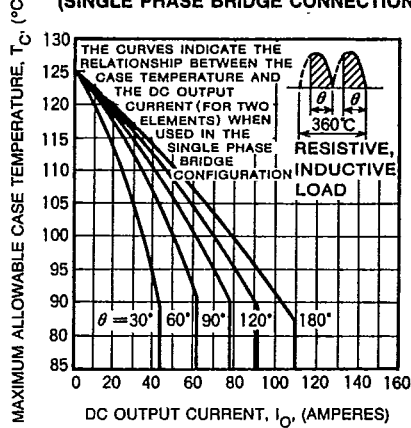
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CM430455, CM430855
Dual SCR POW-R-BLOK™ Modules
55 Amperes/400-800 Volts

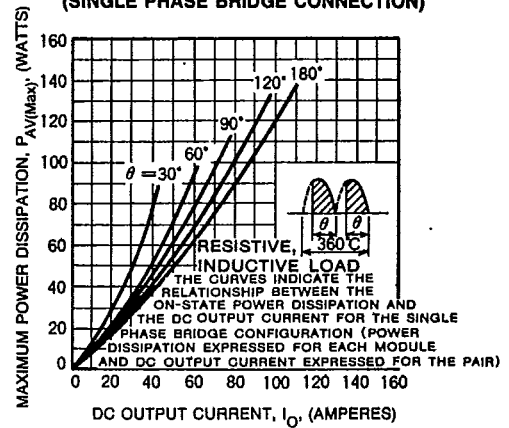
MAXIMUM ON-STATE POWER DISSIPATION
(REVERSE PARALLEL CONNECTION)



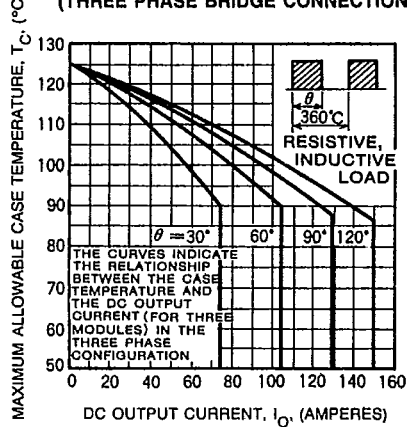
MAXIMUM ALLOWABLE CASE TEMPERATURE
(SINGLE PHASE BRIDGE CONNECTION)



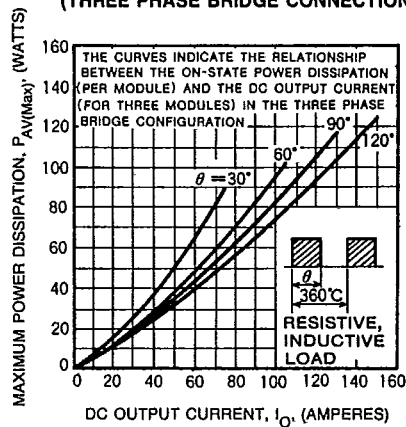
MAXIMUM ON-STATE POWER DISSIPATION
(SINGLE PHASE BRIDGE CONNECTION)



MAXIMUM ALLOWABLE CASE TEMPERATURE
(THREE PHASE BRIDGE CONNECTION)



MAXIMUM ON-STATE POWER DISSIPATION
(THREE PHASE BRIDGE CONNECTION)





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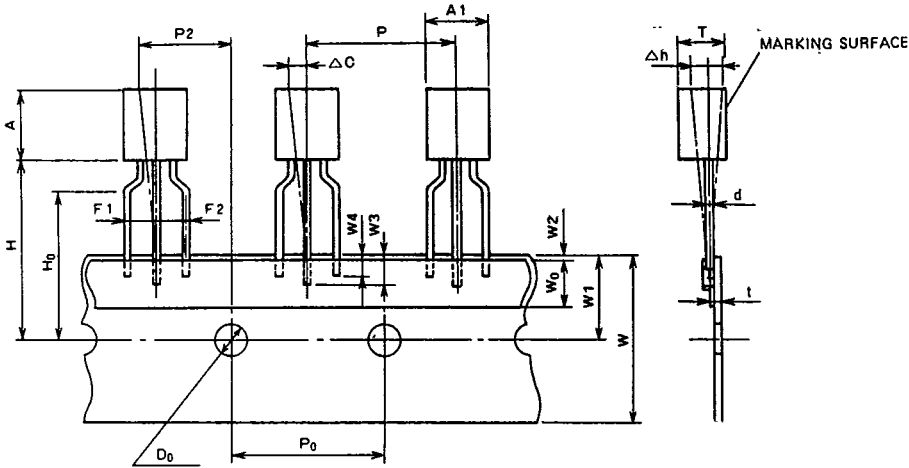
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Taping

STANDARD SPECIFICATIONS
FOR TAPING OF MOLDED
PACKAGE THYRISTORS AND
TRIACS

TO-92 Package

Thyristor
CR02AM, CR03AM, CR04AM
Triac
BCR1AM



Taping dimensions

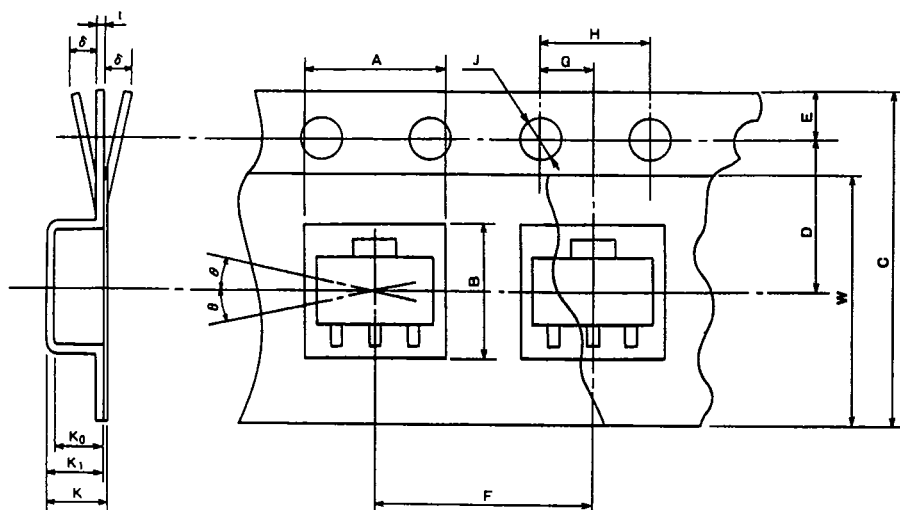
Description of symbol	Symbol	Dimensions (Unit:mm)	Remark
Product width	A1	5.0 MAX	
Product height	A	5.0 MAX	
Product thickness	T	3.7 MAX	
Lead wire diameter	d	0.6 MAX	
Sticker lead wire length (1)	W3	2.5 MIN	
Sticker lead wire length (2)	W4	2.0 MIN	
Pitch between products	P	12.7 ± 1.0	
Feed hole pitch	P ₀	12.7 ± 0.3	The cumulative pitch error is ± 1mm per 20 pitches.
Feed hole deviation (1)	P2	6.35 ± 1.3	
Distance between lead wires	F1, F2	2.5 ± 0.4	
Defective product (1)	Δh	0 ± 2.0	
Tape width	W	18.0 ± ^{1.0} _{0.5}	
Sticker tape width	W ₀	6.0 ± 0.5	
Feed hole deviation (2)	W1	9.0 ± 0.5	
Sticker tape deviation	W2	0.5 MAX	
Position of product bottom surface	H	17.5 MIN	
Lynch height of lead wire	H ₀	16.0 ± 0.5	
Feed hole diameter	D ₀	4.0 ± 0.2	
Tape thickness	t	0.7 ± 0.2	
Defective product (2)	ΔC	0 ± 1.0	



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Powerex Semiconductor Data Book
Taping



SOT-89 Package

Thyristor
CR08AS

Taping dimensions

Description of symbol		Symbol	Dimensions/angles Unit:mm	Remark
Parts Insertion	Height	A	5.0 ± 0.1	Cross-section of the surface 0.5mm above the inner bottom
	Width	B	4.6 ± 0.1	Cross-section of the surface 0.5mm above the inner bottom
Concave square hole	Depth	K ₀	1.8 ± 0.1	Inner space
	Pitch	F	8.0 ± 0.1	Cumulative error +0.1/-0.3 MAX/10 pitches
Round feed hole	Diameter	J	$\phi 1.5 \pm 0.05$	
	Pitch	H	4.0 ± 0.1	Cumulative error +0.1/-0.3 MAX/10 pitches
	Position	E	1.5 ± 0.1	Distance between the tape edge and the hole center
Distance between center lines	Vertical	G	2.0 ± 0.5	Center line of concave square hole and round feed hole
	Horizontal	D	5.65 ± 0.05	Center line of concave square hole and round feed hole
Cover tape	Width	W	$9.5 + 0.3/-0$	Thickness: 0.1 MAX
Carrier tape	Width	C	12 ± 0.2	Warp ± 0.3 MAX
	Thickness	t	0.3 ± 0.05	
	Package hole depth	K ₁	2.1 ± 0.1	
Device	Package dimensions	—	—	As shown in (e)
	Inclination	θ	30° MAX.	
Total Thickness		K	2.3 ± 0.1	Total thickness including cover and carrier tapes