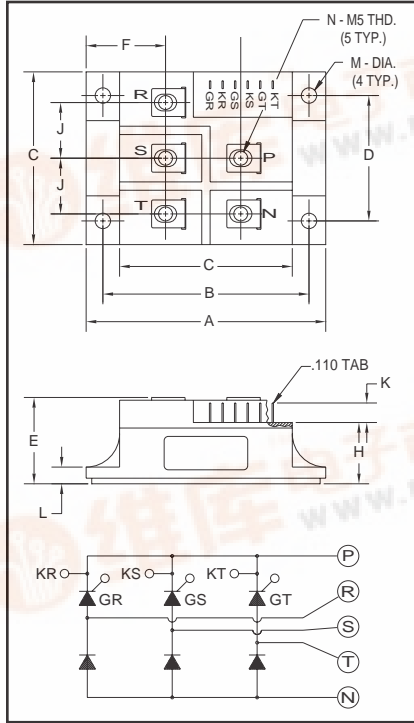


CE420830

Powerex, Inc., 200 Hillis Street, Youngwood, Pennsylvania 15697-1800 (724) 925-7272

**Three-Phase SCR/Diode Bridge Modules**  
30 Amperes/800 Volts



Outline Drawing

Dimension	Inches	Millimeters
A	3.386	86
B	2.913±0.012	74±0.3
C	2.441	62
D	1.772±0.008	45±0.2
E	1.220	31
F	1.122	28.5
G	1.063	27
H	0.866	22
J	0.787	20
K	0.276	7
L	0.236	6
M	0.217±0.008 Dia. 5.5±0.2 Dia.	
N	M5 Metric	M5



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**Description:**

Powerex Three-Phase SCR/Diode Bridge Modules are designed for use in applications requiring variable DC Voltage control from AC mains. The modules are isolated for easy mounting with other components on common heatsinks.

**Features:**

- Isolated Mounting
- Glass Passivated Chips
- $dv/dt = 500V/\mu s$
- Metal Baseplate
- Low Thermal Impedance
- Quick Connect Signal Terminals

**Applications:**

- Battery Supplies
- AC and DC Motor Control
- Furnace Control

**Ordering Information:**

Select the complete eight digit module part number you desire from the table below.  
Example: CE420830 is a 800 Volt, 30 Ampere Three-Phase SCR/Diode Bridge Module.

Type	Voltage Volts (x100)	Current Rating Amperes (30)
CE42	08	30



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**Absolute Maximum Ratings**

Characteristics	Symbol	CE420830	Units
Peak Forward Blocking Voltage	$V_{DRM}$	800	Volts
Transient Peak Forward Blocking Voltage (Non-Repetitive), $t < 5ms$	$V_{DSM}$	960	Volts
DC Forward Blocking Voltage	$V_{D(DC)}$	640	Volts
Peak Reverse Blocking Voltage	$V_{RRM}$	800	Volts
Transient Peak Reverse Blocking Voltage (Non-Repetitive), $t < 5ms$	$V_{RSM}$	960	Volts
DC Reverse Blocking Voltage	$V_{R(DC)}$	640	Volts
DC Output Current, $T_C = 80^\circ C$	$I_O$	30	Amperes
Peak One-Cycle Surge (Non-Repetitive) On-State Current (60Hz)	$I_{TSM}, I_{FSM}$	300	Amperes
Peak One-Cycle Surge (Non-Repetitive) On-State Current (50Hz)	$I_{TSM}, I_{FSM}$	275	Amperes
$I^2t$ (for Fusing), 8.3 milliseconds	$I^2t$	378	$A^2sec$
Critical Rate-of-Rise of On-State Current*	$di/dt$	100	Amperes/ $\mu s$
Peak Gate Power Dissipation	$P_{GM}$	5.0	Watts
Average Gate Power Dissipation	$P_{G(AV)}$	0.5	Watts
Peak Forward Gate Voltage	$V_{GFM}$	10	Volts
Peak Reverse Gate Voltage	$V_{GRM}$	5.0	Volts
Peak Forward Gate Current	$I_{GFM}$	2.0	Amperes
Storage Temperature	$T_{STG}$	-40 to 125	$^\circ C$
Operating Temperature	$T_j$	-40 to 125	$^\circ C$
Maximum Mounting Torque M5 Mounting Screw	—	17	in.-lb.
Maximum Mounting Torque M5 Terminal Screw	—	17	in.-lb.
Module Weight (Typical)	—	310	Grams
V Isolation	$V_{RMS}$	2000	Volts

\* $T_j = 125^\circ C, I_G = 0.5A, V_D = 1/2 V_{DRM}$



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

Characteristics	Symbol	Test Conditions	CE420830	Units
<b>Blocking State Maximums</b>				
Forward Leakage Current, Peak	$I_{\text{DRM}}$	$T_j = 125^\circ\text{C}$ , $V_{\text{DRM}} = \text{Rated}$	4.0	mA
Reverse Leakage Current, Peak	$I_{\text{RRM}}$	$T_j = 125^\circ\text{C}$ , $V_{\text{RRM}} = \text{Rated}$	4.0	mA
<b>Conducting State Maximums</b>				
Peak On-State Voltage	$V_{\text{FM}}, V_{\text{TM}}$	$I_{\text{FM}} = 45\text{A}$ , $I_{\text{TM}} = 45\text{A}$ ,	1.5	Volts
<b>Switching Minimums</b>				
Critical Rate-of-Rise of Off-State Voltage	dv/dt	$T_j = 125^\circ\text{C}$ , $V_{\text{D}} = 2/3 V_{\text{DRM}}$	500	Volts/ $\mu\text{s}$
<b>Thermal Maximums</b>				
Thermal Resistance, Junction-to-Case	$R_{\theta(\text{J-C})}$	Per Module	1.8	$^\circ\text{C}/\text{Watt}$
Thermal Resistance, Case-to-Sink (Lubricated)	$R_{\theta(\text{C-S})}$	Per Module	0.06	$^\circ\text{C}/\text{Watt}$
<b>Gate Parameters Maximums</b>				
Gate Current-to-Trigger	$I_{\text{GT}}$	$V_{\text{D}} = 6\text{V}$ , $R_{\text{L}} = 2\Omega$	50	mA
Gate Voltage-to-Trigger	$V_{\text{GT}}$	$V_{\text{D}} = 6\text{V}$ , $R_{\text{L}} = 2\Omega$	2.0	Volts
Non-Triggering Gate Voltage	$V_{\text{GDM}}$	$T_j = 125^\circ\text{C}$ , $V_{\text{D}} = 1/2 V_{\text{DRM}}$	0.25	Volts



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