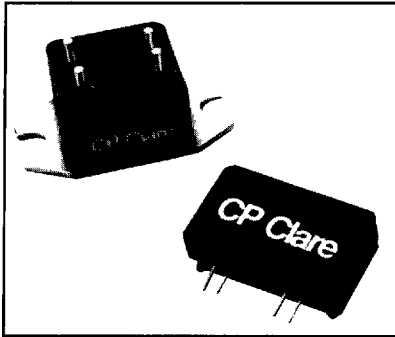


T-41-87

PowerBLOC Solid State Switches

DESCRIPTION



CP Clare's "JT"/"MX" series solid state switches feature a time and field proven design with similar ratings to OptoFILM™ series zero-crossing devices, PowerBLOC series feature random turn on to reduce cost and provide mid-cycle control capability. Applications include control of heaters, motors, solenoids, lighting systems, larger relays and contactors.

FEATURES

- Random Turn-On
- Ratings to 600V, 10A
- DC Control, AC Output
- Optically Isolated
- TTL and CMOS Compatible
- UL Recognized: File Number E69938
- CSA Approved: File Number LR43639
- VDE Compatible

APPLICATIONS

- Programmable Controllers
- Process Control
- Power Control Panels
- Remote Switching
- Gas Pump Electronics
- Contactors
- Large Relays
- Solenoids
- Motors
- Heaters

ABSOLUTE RATINGS (@ 25°C)

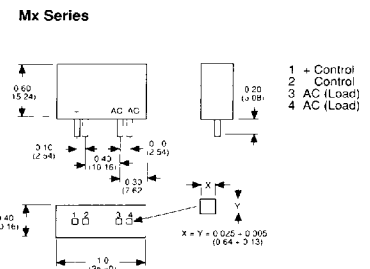
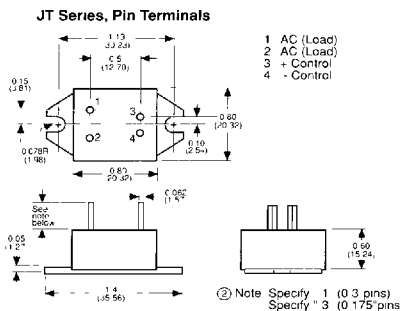
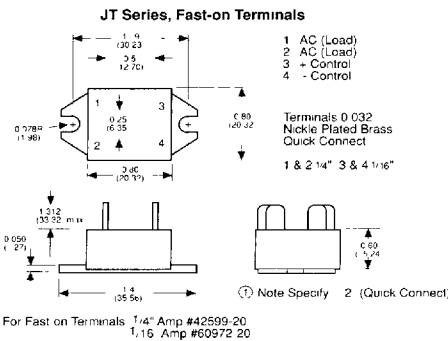
Parameter	Min	Typ	Max	Units
Input Control Current	—	—	100	mA
Peak (10mSec)	—	—	1	A
Reverse Control Voltage	—	—	5	V _{DC}
Thermal Resistance:				
Junction-to-Ambient	—	—	41.0	°C/Watt ¹
Junction-to-Tab	—	—	5.9	°C/Watt ²
Capacitance				
Input to Output	—	3	—	pF
Isolation Voltage				
Input-to-Output	2500	—	—	V _{RMS}
Terminals-to-Tab/Case	2500	—	—	V _{RMS}
Operating Temperature	-25	—	75	°C
Storage Temperature	-25	—	125	°C ³
Soldering Temperature (10 Seconds Max)	—	—	260	°C

Surge and Overload Current Maximum	
Duration	Load Current
1 Second	3 Times Continuous Rating
16 Milliseconds	10 Times Continuous Rating
1 Millisecond	20 Times Continuous Rating

¹ MX Series T_A=40°C ³ MX Series Max = 75°C
² JT Series T_{TAB}=65°C

MECHANICAL DIMENSIONS

Push-on Connectors for JT Series (18-22 AWG wire)



Dimensions
Inches
(mm)

Specifications @ 25°C

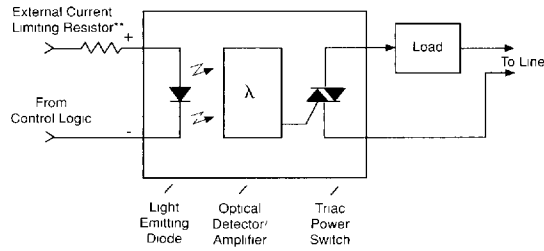
Part Number		JT(*) 1205-(X)	JT(*) 2405-(X)	JT(*) 1210-(X)	JT(*) 2410-(X)	JT(*) 2415-(X)	MX1	MX100	MX200	Units
Peak Blocking Voltage		400	500	400	500	500	40	400	500	V
Output Rating		5/120	5/240	10/120	10/240	15/240	1.5/24	1.5/120	1.5/240	A/V _{RMS}
Off-State Leakage Current @ Rated Blocking Voltage	Max	1	1	1	1	1	1	1	1	mA
On-State Voltage Drop	Max	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	V _{RMS}
Critical Rate of Rise Voltage dv/dt @ 60°C tab temperature	Min	75	75	75	75	75	75	75	75	V/μS
Holding Current	Max	1	1	1	1	1	1	1	1	mA
Response Time @ 60Hz	Typ	32	32	32	32	32	32	32	32	mS
Applied Load Voltage Before Turn-on	Typ	25	25	25	25	25	5	25	25	V _{AC}
Operating Frequency	Min Max	20 500	20 500	20 500	20 500	20 500	20 500	20 500	20 500	Hz
Control Voltage JTA/MX	Min Typ Max	4 5 8	4 5 8	4 5 8	4 5 8	4 5 8	2 ¹ — 48 ¹	2 ¹ — 48 ¹	2 ¹ — 48 ¹	V _{DC}
JTB	Min Typ Max	9 12 16	9 12 16	9 12 16	9 12 16	9 12 16	—	—	—	
JTC	Min Typ Max	20 24 28	20 24 28	20 24 28	20 24 28	20 24 28	—	—	—	
Input Control Current	Max	15	15	15	15	15	15	15	15	
Dropout Voltage	Min	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	V _{DC}

¹ External limiting resistor required to maintain control current between 15mA (min) and 50mA (max)

High voltage available (H Suffix)

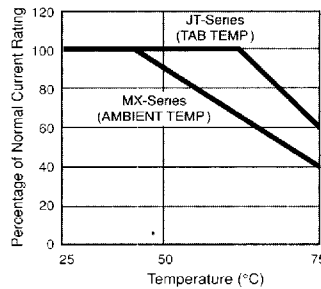
(*) "A" designates 4-8 V_{DC} control (X) "1" specifies 0.3" pins
 "B" designates 9-16 V_{DC} control "2" specifies Quick Connect
 "C" designates 20-26 V_{DC} control "3" specifies 0.175" pins

Equivalent Circuit

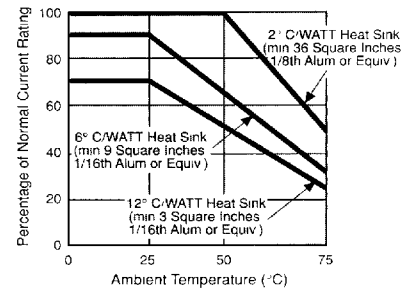


** For JT Series Resistors is Built-in

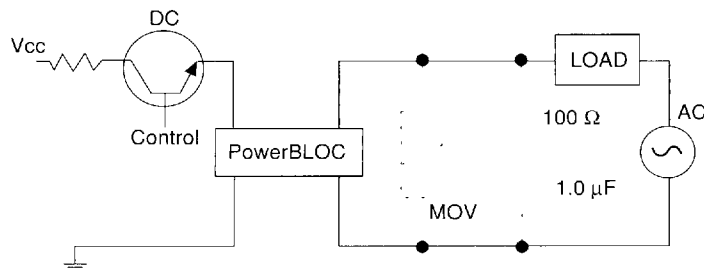
Load Current vs. Temperature (Freestanding)



Load Current vs. Temperature (JT Series with Heat Sink)



Typical Application



Under certain low power factor load conditions, it may be advisable to connect an RC snubber network across the SSR output. With low power factor loads, phase shifts occur which alter the circuit synchronization and prevent SSR turn-off. A snubber capacitor as small as .01 μF compensates for the phase shift and returns the SSR to proper input signal response.

A snubber is also useful in the event of severe high voltage line spikes. While these do not generally cause damage to the SSR, they may induce false 1/2 cycle turn-on.