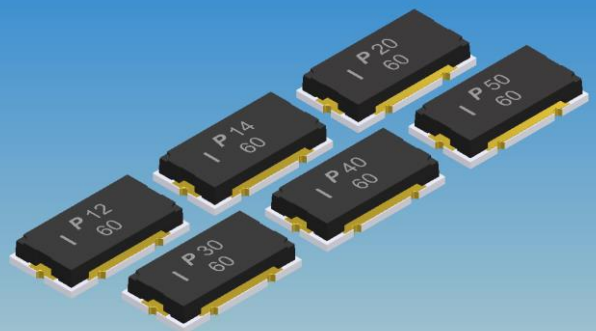


PRODUCT
DATASHEET



CLM3820 60A F Series Device (Draft)

CLM3820 60A F Series Device

Description

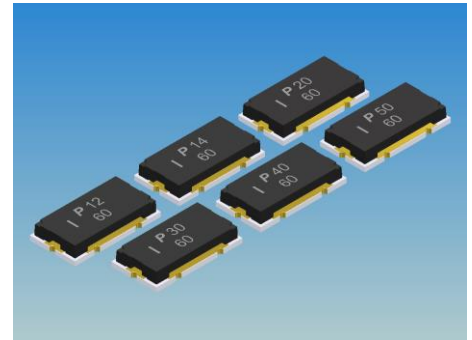
Current Limiting Module (CLM) is a chip type surface mountable device that can protect against both overcurrent and overcharging. It comprises a fuse element to ensure stable operation under normal electrical current and to cut off the current when overcurrent occurs. It also comprises a resistive heating element that could be used in combination with a voltage detecting means, such as IC and FET. When overvoltage is detected, the heating element is electrically excited to generate heat to blow the fuse element to achieve overvoltage protection.

Features

- Halogen-free
- Surface mountable
- Overcharging protection
- Fast response time
- Overcurrent protection

Application

- Self Balancing
- Automotive applications
- E-Bike
- Energy Storage systems
- Power Tool
- Drone



Agency Approval and Environmental Compliance

Agency	File Number	Regulation	Standard
	E331807		IEC 61249-2-21:2003
	TA 50428400		2011/65/EU

Electrical Specifications

Part Number	I _{rated} (A)	Cells in series	V _{max} (V _{DC})	I _{break} (A)	V _{OP} (V)	Resistance		Agency Approval	
						R _{heater} (Ω)	R _{fuse} (mΩ)		
CLM3820P1260F	60	3	80	160	9.6 ~ 13.5	1.83 ~ 3.70	≤ 2.0	✓	✓
CLM3820P1460F	60	4	80	160	13.0 ~ 18.4	3.4 ~ 6.7	≤ 2.0	✓	✓
CLM3820P2060F	60	5	80	160	16.7 ~ 23.5	5.6 ~ 11.1	≤ 2.0	✓	✓
CLM3820P3060F	60	6~7	80	160	22.3 ~ 31.5	10.0 ~ 19.9	≤ 2.0	✓	✓
CLM3820P4060F	60	9~10	80	160	33.0 ~ 46.9	22.0 ~ 43.5	≤ 2.0	✓	✓
CLM3820P5060F	60	12~14	80	160	43.7 ~ 62.0	38.5 ~ 77.0	≤ 2.0	✓	✓

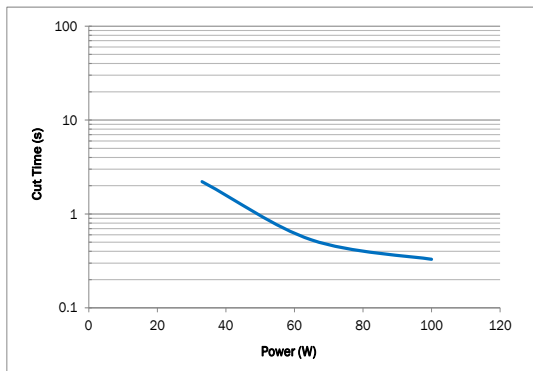
CLM3820 60A F Series Device

Thermal Derating Characteristics

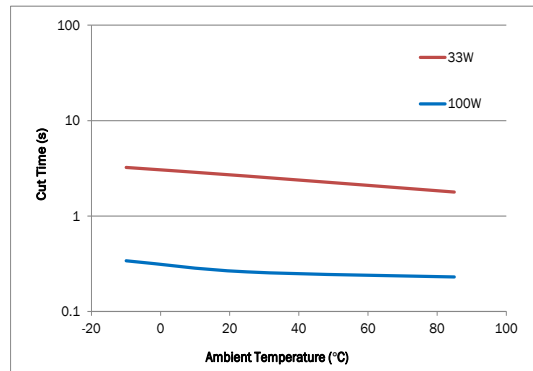
Ambient Temperature (°C)	25	40	60
Recommend Rated Current (A)	67.0	60.0	49.0

Cut Time by Heater Operation

■ Various heater wattage at 25°C ambient temperature.

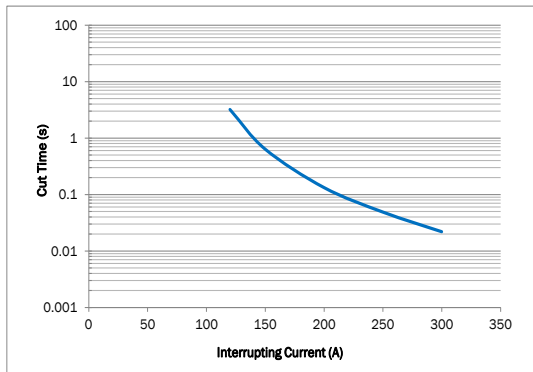


■ Constant heater wattage at various ambient temperature.

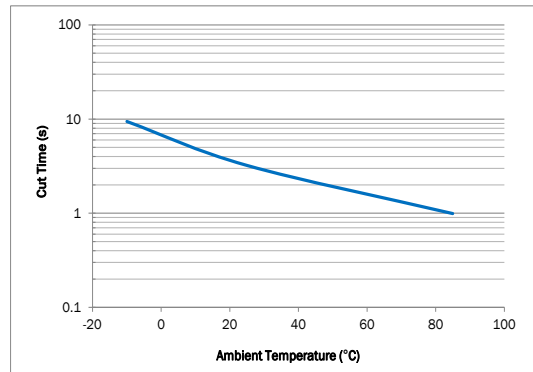


Cut Time by Current Operation

■ Various interrupting current at 25°C ambient temperature.

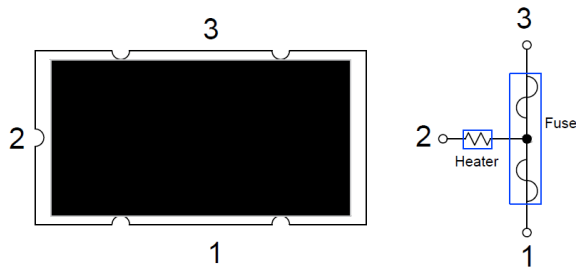


■ Constant 2x rated current at various ambient temperature.

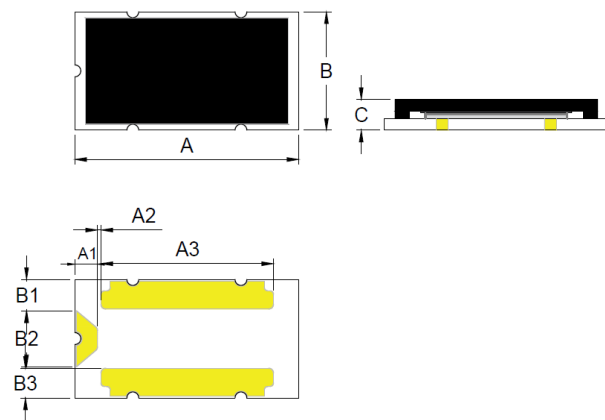


CLM3820 60A F Series Device

Device Circuit



Physical Dimensions (mm.)



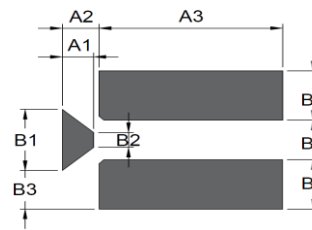
A	9.50 ± 0.2
B	5.00 ± 0.3
C	2.00 max
A1	0.89 ± 0.1
A2	0.15 ± 0.1
A3	7.32 ± 0.1

B1	1.32 ± 0.1
B2	2.36 ± 0.1
B3	1.25 ± 0.1

Environmental Specifications

Storage Temperature	0~35°C, ≤ 70%RH Shelf life: 1 year
Operating Temperature	-10°C to +65 °C
Hot Passive Aging	100±5°C, 250 hours No structural damage and functional failure
Humidity Aging	60°C±2°C, 90~95%R.H. 250 hours No structural damage and functional failure
Cold Passive Aging	-20±3°C, 500 hours No structural damage and functional failure

Board and Solder Layout Recommend (mm)



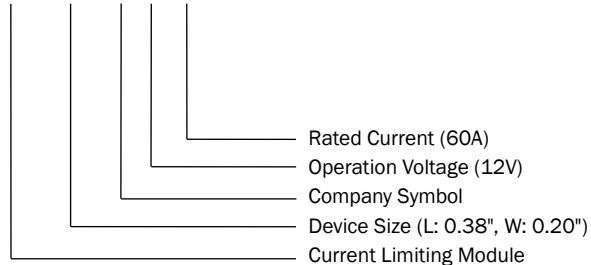
Material	Glass Epoxy PCB
Base Thickness	0.6mm
Copper Thickness	0.105mm
Covered Wire	AWG6

A1	1.30 ± 0.1
A2	1.52 ± 0.1
A3	7.60 ± 0.1

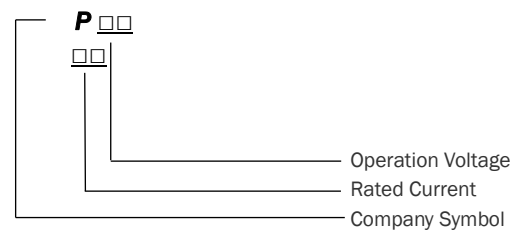
B1	3.10 ± 0.1
B2	0.75 ± 0.1
B3	1.95 ± 0.1
B4	2.50 ± 0.1
B5	2.00 ± 0.1
B6	2.50 ± 0.1

Part Number System

CLM 3820 P 12 60F

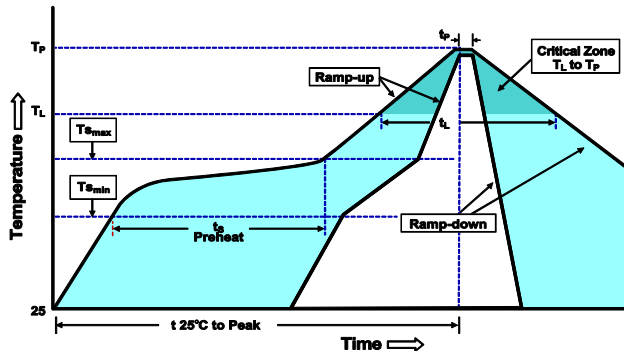


Part Marking System



CLM3820 60A F Series Device

Soldering Parameters

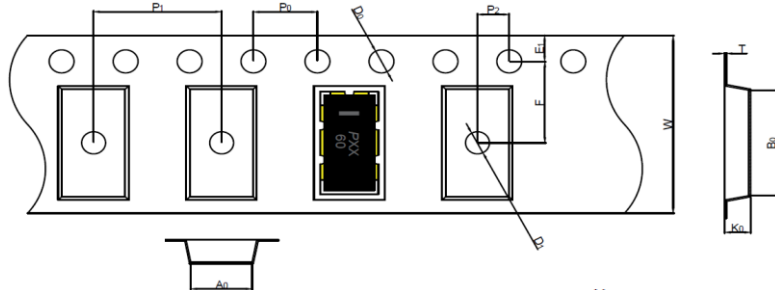


Average Ramp-Up Rate ($T_{s_{max}}$ to T_P)	3°C/second max.
Preheat	
-Temperature Min ($T_{s_{min}}$)	150°C
-Temperature Max ($T_{s_{max}}$)	200°C
-Time ($T_{s_{min}}$ to $T_{s_{max}}$)	60-120 seconds
Time maintained above:	
-Temperature (T_L)	217°C
-Time (t_L)	60-105 seconds
Peak Temperature (T_P)	255°C
Time within 5°C of actual Peak Temperature (t_P)	5 seconds max.
Ramp-Down Rate	6°C /second max.
Time 25°C to Peak Temperature	8 minutes max.

Note 1: The temperature shown above is the top-side surface temperature of the device.

Note 2: If the soldering temperature profile deviates from the recommended profile, devices may not meet the performance requirements

Tape & Reel Specification (mm.)



W	16.0 ± 0.30
F	7.50 ± 0.10
E ₁	1.75 ± 0.10
D ₀	1.50 ± 0.10
D ₁	1.50 ± 0.10
P ₀	4.00 ± 0.10
P ₁	8.00 ± 0.10
P ₂	2.00 ± 0.10
A ₀	5.40 ± 0.10
B ₀	9.85 ± 0.10
T	0.30 ± 0.05
K ₀	2.48 ± 0.10

H	21.4 ± 1.0
W	17.4 ± 1.0
D	Ø99.0 ± 0.5
C	Ø330 ± 1.0

Packaging Quantity

Part Number	Tape & Reel Quantity
CLM3820PXX60F	1000