RoHS 2002/9

bel

OZCADAUG2010

Surface Mount PTC

0ZCA Series

1206 Chip

RoHS6 Compliant & Halogen-Free

Cl/Br

Application

All high-density boards

Product Features

1206 Chip Size, Fast Trip Time, Low DCR Resistance

Operating (Hold Current) Range

50mA ~ 1.5A

Maximum Voltage

6V ~ 60V (per table)

Temperature Range

-40°C to 85°C

Agency Approval

TUV (Std. EN60738-1-1, Cert. R50102117)

UL Component (Std. UL1434, File E305051)

UL Conditions of Acceptability:

1.These devices have been investigated for use in safety circuits and are suitable as a limiting device.

2.These devices have been calibrated to limit the current to 8 amps within 5 seconds, per ANSI/NFPA 70, "National Electrical Code"

Electrical Characteristics (23°C)

	Part Number	Hold Current	Trip Current	Max.Time to Trip		Maximum Current	Rated Voltage	Typical Power	Resistance Tolerance			Agency Approvals	
									Rmin	Rmax	R1max		
		I_H, A	I_T, A	Current,A	Seconds	I_{max}, A	V_{max}, Vdc	P_d, W	Ohms	Ohms	Ohms		
Z	0ZCA0005FF2E	0.05	0.15	0.25	1.50	10	60	0.4	3.6	15.0	50.0	Y	Y
A	0ZCA0010FF2E	0.10	0.25	0.50	1.00	10	60	0.4	1.6	4.6	15.0	Y	Y
B	0ZCA0020FF2E	0.20	0.40	8.00	0.05	10	30	0.4	0.60	1.25	2.50	Y	Y
C	0ZCA0035FF2G	0.35	0.75	8.00	0.10	40	16	0.4	0.30	0.60	1.20	Y	Y
D	0ZCA0050FF2G	0.50	1.00	8.00	0.10	40	8	0.4	0.15	0.35	0.70	Y	Y
E	0ZCA0075FF2G	0.75	1.50	8.00	0.20	100	6	0.6	0.09	0.19	0.29	Y	Pending
F	0ZCA0100FF2E	1.00	1.80	8.00	0.30	100	6	0.6	0.055	0.133	0.210	Y	Pending
G	0ZCA0110FF2E	1.10	2.20	8.00	0.30	100	6	0.8	0.040	0.110	0.180	Y	Pending
H	0ZCA0150FF2C	1.50	3.00	8.00	1.00	100	6	0.8	0.040	0.075	0.120	Y	Pending

I_H Hold current-maximum current at which the device will not trip in still air at 23°C.

I_T Trip current-minimum current at which the device will always trip in still air at 23°C.

I_{max} Maximum fault current device can withstand without damage at rated voltage (Vmax).

V_{max} Maximum voltage device can withstand without damage at its rated current.

P_d Typical power dissipated by device when in tripped state in 23°C still air environment.

R_{min} Minimum device resistance at 23°C.

R_{max} Maximum device resistance at 23°C.

$R1_{max}$ Maximum device resistance at 23°C, 1 hour after initial device trip.

Termination pad characteristics

Termination pad materials

Matte Tin-plated Copper

Product Dimensions

Figure 1

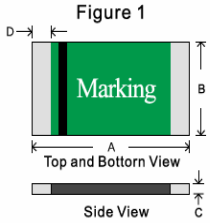
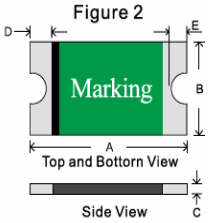


Figure 2

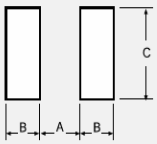


All dimensions in mm.

Part Number	Fig.	A		B		C		D		E	
		Min	Max	Min	Max	Min	Max	Min	Max	Min	Max
0ZCA0005FF2E	1	3.00	3.50	1.50	1.80	0.45	0.85	0.10	0.8	----	----
0ZCA0010FF2E	1	3.00	3.50	1.50	1.80	0.45	0.85	0.10	0.8	----	----
0ZCA0020FF2E	1	3.00	3.50	1.50	1.80	0.45	0.75	0.10	0.8	----	----
0ZCA0035FF2G	1	3.00	3.50	1.50	1.80	0.45	0.75	0.10	0.8	----	----
0ZCA0050FF2G	1	3.00	3.50	1.50	1.80	0.45	0.55	0.10	0.8	----	----
0ZCA0075FF2G	2	3.00	3.50	1.50	1.80	0.45	1.25	0.25	0.8	0.10	0.45
0ZCA0100FF2E	2	3.00	3.50	1.50	1.80	0.45	1.00	0.25	0.8	0.10	0.45
0ZCA0110FF2E	2	3.00	3.50	1.50	1.80	0.45	1.00	0.25	0.8	0.10	0.45
0ZCA0150FF2C	2	3.00	3.50	1.50	1.80	0.80	1.40	0.25	0.8	0.10	0.45

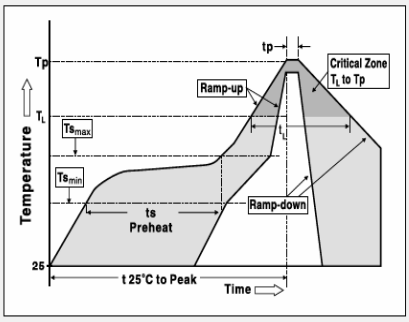
Pad Layout, Solder Reflow and Rework Recommendations

The dimensions in the table below provide the recommended pad layout for each 0ZCA device



A Nominal		B Nominal		C Nominal	
mm	Inch	mm	Inch	mm	Inch
2	0.079	1	0.039	1.9	0.075

Profile Feature	Pb-Free Assembly
Average Ramp-Up Rate (Tsmax to Tp)	3 ℃/second max.
Preheat : Temperature Min (Tsmin) Temperature Max (Tsmax) Time (tsmin to tsmax)	 150 ℃ 200 ℃ 60-180 seconds
Time maintained above: Temperature(T_L) Time (t_L)	 217 ℃ 60-150 seconds
Peak/Classification Temperature(Tp) :	260 ℃
Time within 5℃ of actual Peak : Temperature (tp)	 20-40 seconds
Ramp-Down Rate :	6 ℃/second max.
Time 25 ℃ to Peak Temperature :	8 minutes max.



Solder Reflow

*** Due to "lead free/RoHS6" construction of these PTC devices, the required Temperature and Dwell Time in the "Soldering" zone of the reflow profile are greater than those used for non-RoHS devices.**

1. Recommended reflow methods; IR , vapor phase oven, hot air oven.
2. The 0ZCA Series is suitable for wave solder application methods.
3. Recommended maximum paste thickness is 0.25mm.
4. Devices are compatible with standard industry cleaning solvents and methods.

Caution

If reflow temperature/dwell times exceed the recommended profile, the electrical performance of the PTC may be affected.

Rework

MIL-STD-202G Method 210F.Test Condition A.

Standard Package

Part Number	Reel/Tape
0ZCA0005FF2E Thru 0ZCA0020FF2E	3K
0ZCA0035FF2G	4K
0ZCA0050FF2G	4K
0ZCA0075FF2G	3K
0ZCA0100FF2E	3K
0ZCA0110FF2E	3K
0ZCA0150FF2C	2K

4000 , 3000 or 2000 fuses in 7 inches dia. Reel, 8mm wide tape, 4mm pitch, per EIA-481 (equivalent IEC-286 part 3).

PTC Marking

" b", I_H code.

Part Number	I_H Code
0ZCA0005FF2E	C
0ZCA0010FF2E	D
0ZCA0020FF2E	F
0ZCA0035FF2G	J
0ZCA0050FF2G	M
0ZCA0075FF2G	P
0ZCA0100FF2E	1
0ZCA0110FF2E	R
0ZCA0150FF2C	S

Specifications subject to change without notice

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Surface Mount PTC

0ZCA Series

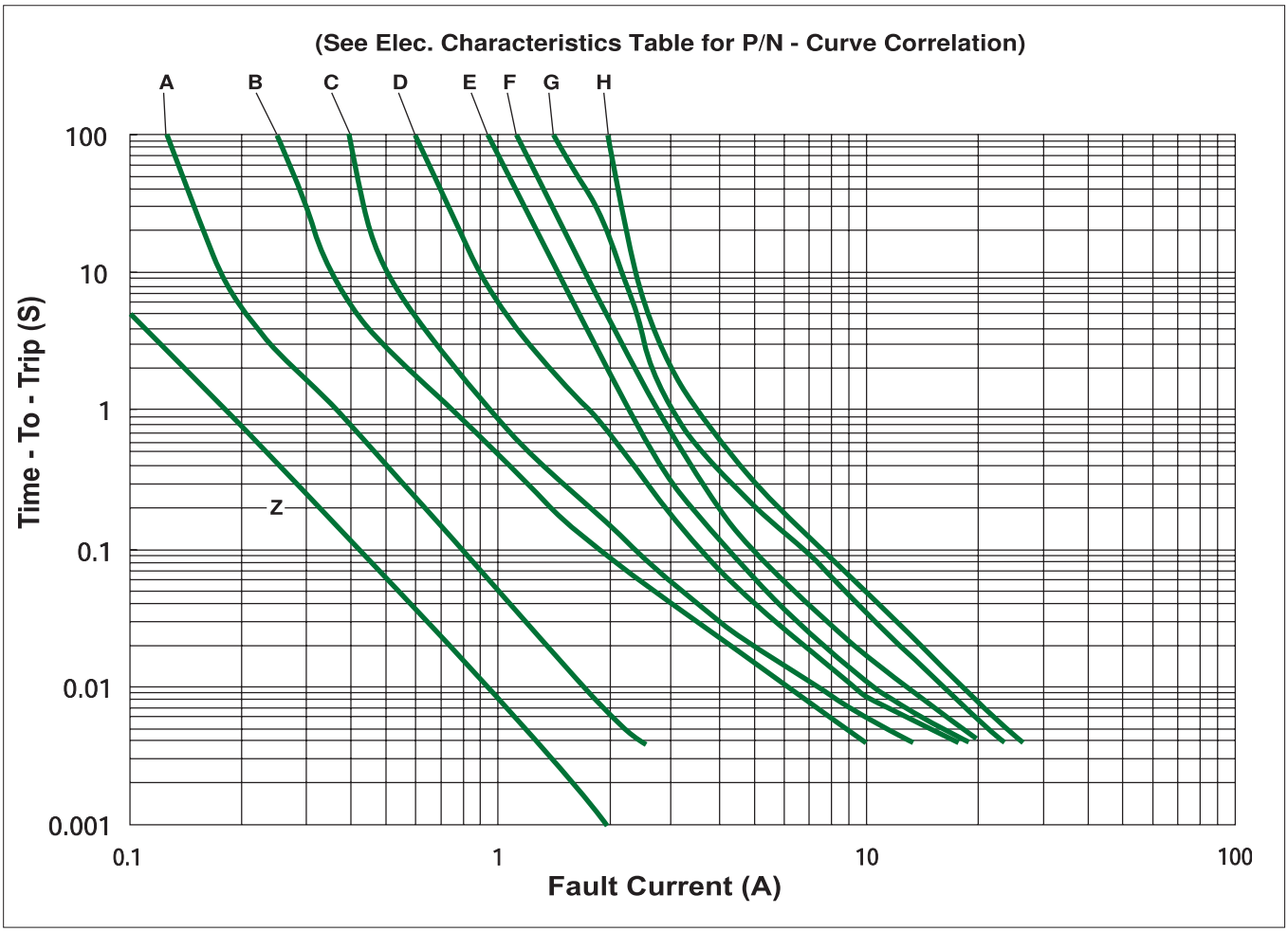
1206 Chip

RoHS6 Compliant & Halogen-Free

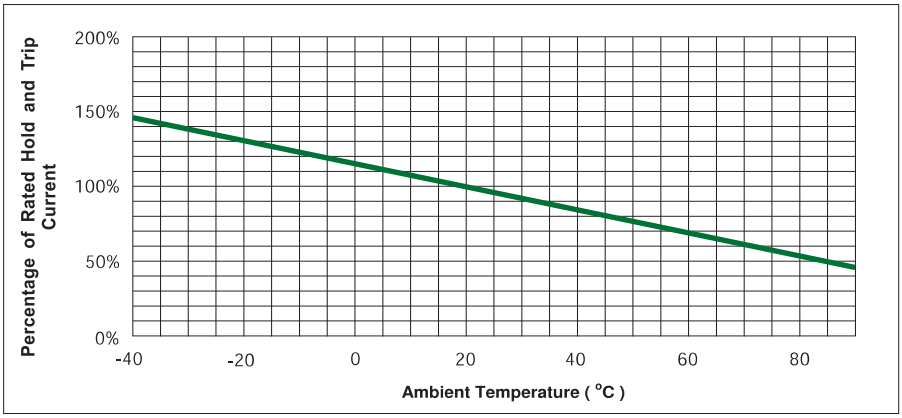
Cl / Br

0ZCAC0809

Typical Time - To - Trip at 23°C



Thermal Derating Curve



Cautionary Notes

1. Operation beyond the specified maximum ratings or improper use may result in damage and possible electrical arcing and/or flame.
2. These Polymer PTC (PPTC) devices are intended for protection against occasional overcurrent/ overtemperature fault conditions and may not be suitable for use in applications where repeated and/ or prolonged fault conditions are anticipated.
3. Avoid contact of PTC device with chemical solvent. Prolonged contact may adversely impact the PTC performance.
4. These PTC devices may not be suitable for use in circuits with a large inductance, as the PTC trip can generate circuit voltage spikes above the PTC rated voltage.

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