



OZCCDJAN2011

# Surface Mount PTC

## 0ZCC Series

1812 Chip  
RoHS6 Compliant & Halogen-Free



### Application

All high-density boards

### Product Features

1812 Chip Size, Fast Trip Time, Low DCR Resistance

### Operating (Hold Current) Range

140mA ~ 3A

### Maximum Voltage

6V ~ 60V (per table)

### Temperature Range

-40°C to 85°C

### Agency Approval

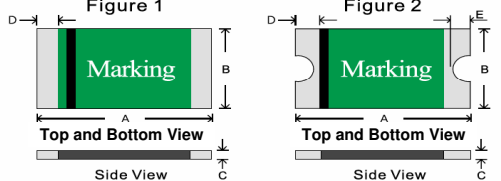
TiUV (Std. FNA0738-1.1 Part R50102187 R50102171)

UL Component (Std. UL1434, File E305051)

### UL Conditions of Acceptability:

- These devices have been investigated for use in safety circuits and are suitable as a limiting device.
- These devices have been calibrated to limit the current to 8 amps within 5 seconds, per ANSI/NFPA 70, "National Electrical Code"

### Product Dimensions



Part Number	Fig.	A		B		C		D		E	
		Min	Max	Min	Max	Min	Max	Min	Max	Min	Max
0ZCC0014FF2C Thru 0ZCC0075FF2C	1	4.37	4.73	3.07	3.41	0.35	0.90	0.30	0.95	----	----
0ZCC0075AF2B	2	4.37	4.73	3.07	3.41	0.80	1.55	0.25	0.95	0.25	0.65
0ZCC0075BF2B	2	4.37	4.73	3.07	3.41	0.80	1.55	0.25	0.95	0.25	0.65
0ZCC0110FF2C	1	4.37	4.73	3.07	3.41	0.25	0.55	0.30	0.95	----	----
0ZCC0110AF2C	1	4.37	4.73	3.07	3.41	0.25	0.90	0.30	0.95	----	----
0ZCC0110BF2B	2	4.37	4.73	3.07	3.41	0.80	1.30	0.25	0.95	0.25	0.65
0ZCC0125FF2C	1	4.37	4.73	3.07	3.41	0.25	0.55	0.30	0.95	----	----
0ZCC0150FF2C	1	4.37	4.73	3.07	3.41	0.25	0.55	0.30	0.95	----	----
0ZCC0150AF2C	2	4.37	4.73	3.07	3.41	0.60	1.10	0.25	0.95	0.25	0.65
0ZCC0150BF2C	2	4.37	4.73	3.07	3.41	0.60	1.55	0.25	0.95	0.25	0.65
0ZCC0160FF2C	1	4.37	4.73	3.07	3.41	0.25	0.90	0.30	0.95	----	----
0ZCC0160AF2C	2	4.37	4.73	3.07	3.41	0.60	1.35	0.25	0.95	0.25	0.65
0ZCC0160BF2C	2	4.37	4.73	3.07	3.41	0.60	1.35	0.25	0.95	0.25	0.65
0ZCC0200FF2C	2	4.37	4.73	3.07	3.41	0.55	1.20	0.25	0.95	0.25	0.65
0ZCC0260FF2C	2	4.37	4.73	3.07	3.41	0.55	1.20	0.25	0.95	0.25	0.65
0ZCC0260AF2B	2	4.37	4.73	3.07	3.41	0.80	1.55	0.25	0.95	0.25	0.65
0ZCC0260BF2B	2	4.37	4.73	3.07	3.41	0.80	1.55	0.25	0.95	0.25	0.65
0ZCC0300FF2B	2	4.37	4.73	3.07	3.41	0.80	1.55	0.25	0.95	0.25	0.65

### Standard Package & Marking

Part Number	Reel/Tape	"b" code		H code
		b xxx	b xxx	
0ZCC0014FF2C	2K	0014		
0ZCC0020FF2C	2K	0020		
0ZCC0035FF2C	2K	0035		
0ZCC0050FF2C	2K	0050		
0ZCC0075FF2C	2K	0075		
0ZCC0075AF2B	1.5K		075	24
0ZCC0075BF2B	1.5K		075	33
0ZCC0110FF2C	2K	0110		
0ZCC0110AF2C	2K		110	16
0ZCC0110BF2B	1.5K		110	24
0ZCC0125FF2C	2K	0125		
0ZCC0150FF2C	2K	0150		
0ZCC0150AF2C	2K		150	12
0ZCC0150BF2C	2K		150	24
0ZCC0160FF2C	2K	0160		
0ZCC0160AF2C	2K		160	12
0ZCC0160BF2C	2K		160	16
0ZCC0200FF2C	2K		200	A
0ZCC0260FF2C	2K	0260		
0ZCC0260AF2B	1.5K		260	13
0ZCC0260BF2B	1.5K		260	16
0ZCC0300FF2B	1.5K	0300		

2000 or 1500 fuses in 7 inches dia. Reel, 8mm wide tape, 4mm pitch, per EIA-481 (equivalent IEC-286 part 3).

### Electrical Characteristics (23°C)

Part Number	Hold Current I <sub>H</sub> , A	Trip Current I <sub>T</sub> , A	Max. Time to Trip Current, A	Seconds	Maximum Current I <sub>max</sub> , A	Rated Voltage V <sub>max</sub> , Vdc	Typical Power P <sub>d</sub> , W	Resistance Tolerance			Agency Approvals	
								R <sub>min</sub> Ohms	R <sub>max</sub> Ohms	R <sub>1max</sub> Ohms	UL	TUV
A 0ZCC0014FF2C	0.14	0.30	8	0.008	10	60	0.8	1.20	2.50	6.50	Y	Y
B 0ZCC0020FF2C	0.20	0.40	8	0.02	10	30	0.8	0.800	2.573	5.000	Y	Y
C 0ZCC0035FF2C	0.35	0.70	8	0.10	40	16	0.8	0.32	0.80	1.50	Y	Y
D 0ZCC0050FF2C	0.50	1.00	8	0.15	40	16	0.8	0.15	0.57	1.00	Y	Y
E 0ZCC0075FF2C	0.75	1.50	8	0.20	40	16	0.8	0.11	0.27	0.45	Y	Y
E 0ZCC0075AF2B	0.75	1.50	8	0.20	40	24	1.0	0.11	0.20	0.29	Y	Y
E 0ZCC0075BF2B	0.75	1.50	8	0.20	40	33	1.0	0.11	0.25	0.40	Y	Y
F 0ZCC0110FF2C	1.10	2.20	8	0.30	100	8	0.8	0.04	0.11	0.21	Y	Y
F 0ZCC0110AF2C	1.10	1.95	8	0.50	40	16	0.8	0.04	0.12	0.18	Y	Y
F 0ZCC0110BF2B	1.10	2.20	8	0.50	100	24	1.0	0.06	0.13	0.20	Y	Y
G 0ZCC0125FF2C	1.25	2.50	8	0.40	40	6	0.8	0.05	0.08	0.14	Y	Y
H 0ZCC0150FF2C	1.50	3.00	8	0.50	40	6	0.8	0.04	0.07	0.11	Y	Y
H 0ZCC0150AF2C	1.50	3.00	8	0.50	100	12	1.0	0.040	0.075	0.110	Y	Y
H 0ZCC0150BF2C	1.50	3.00	8	1.50	100	24	1.0	0.040	0.070	0.120	Y	Y
I 0ZCC0160FF2C	1.60	3.20	8	0.50	40	6	0.8	0.030	0.066	0.100	Y	Y
I 0ZCC0160AF2C	1.60	3.20	8	1.0	100	12	1.0	0.030	0.060	0.100	Y	Y
I 0ZCC0160BF2C	1.60	3.20	8	1.0	100	16	1.0	0.030	0.060	0.100	Y	Y
J 0ZCC0200FF2C	2.00	3.50	8	2.0	100	8	1.0	0.020	0.045	0.070	Y	Y
K 0ZCC0260FF2C	2.60	5.00	8	2.5	100	6	1.0	0.015	0.031	0.047	Y	Y
K 0ZCC0260AF2B	2.60	5.00	8	5.0	100	13.2	1.3	0.015	0.030	0.050	Y	Y
K 0ZCC0260BF2B	2.60	5.00	8	5.0	100	16	1.3	0.015	0.030	0.050	Y	Y
L 0ZCC0300FF2B	3.00	5.00	8	4.0	100	6	1.0	0.012	0.025	0.040	Y	Y

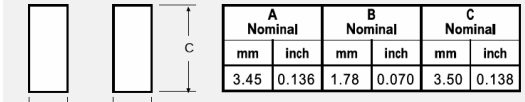
- I<sub>H</sub>** Hold current-maximum current at which the device will not trip in still air at 23°C.
- I<sub>T</sub>** Trip current-minimum current at which the device will always trip in still air at 23°C.
- I<sub>max</sub>** Maximum fault current device can withstand without damage at rated voltage (V<sub>max</sub>).
- V<sub>max</sub>** Maximum voltage device can withstand without damage at its rated current.
- P<sub>d</sub>** Typical power dissipated by device when in tripped state in 23°C still air environment.
- R<sub>min</sub>** Minimum device resistance at 23°C.
- R<sub>max</sub>** Maximum device resistance at 23°C.
- R<sub>1max</sub>** Maximum device resistance at 23°C, 1 hour after initial device trip.

### Termination pad characteristics

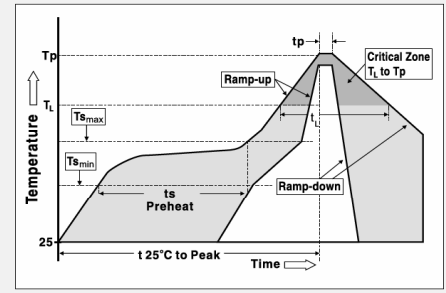
**Termination pad materials**  
Matte Tin-plated Copper

### Pad Layout, Solder Reflow and Rework Recommendations

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



Profile Feature	Pb-Free Assembly
Average Ramp-Up Rate (T <sub>smax</sub> to T <sub>p</sub> )	3 °C/second max.
Preheat:	
Temperature Min (T <sub>smin</sub> )	150 °C
Temperature Max (T <sub>smax</sub> )	200 °C
Time (t <sub>smin</sub> to t <sub>smax</sub> )	60-180 seconds
Time maintained above:	
Temperature (T <sub>i</sub> )	217 °C
Time (t <sub>i</sub> )	60-150 seconds
Peak/Classification Temperature (T <sub>p</sub> )	260 °C
Time within 5°C of actual Peak:	
Temperature (t <sub>p</sub> )	20-40 seconds
Ramp-Down Rate:	6 °C/second max.
Time 25 °C 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 0ZCC 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.

HALOGEN FREE = HF  
LEAD FREE = Pb-free

Specifications subject to change without notice

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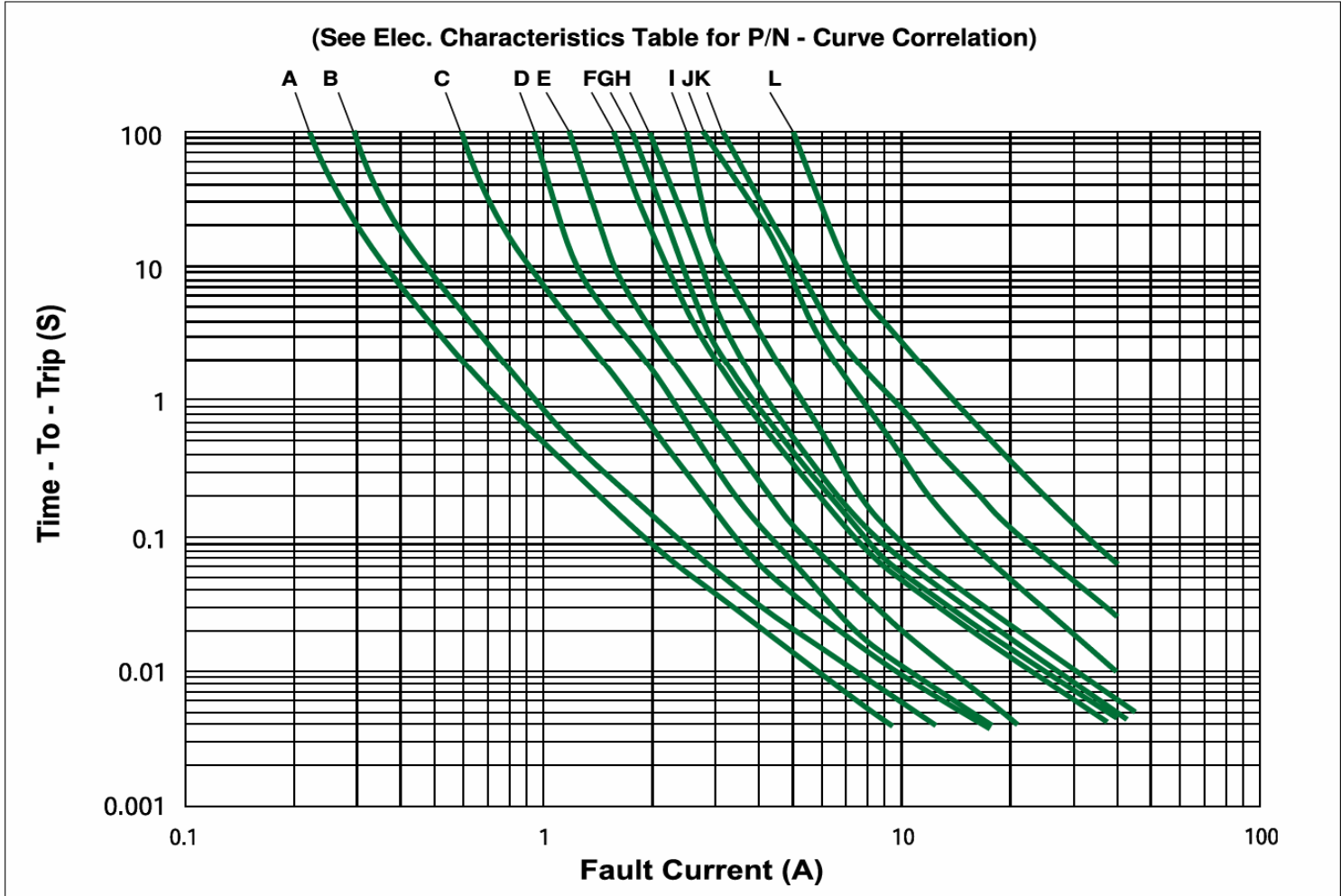
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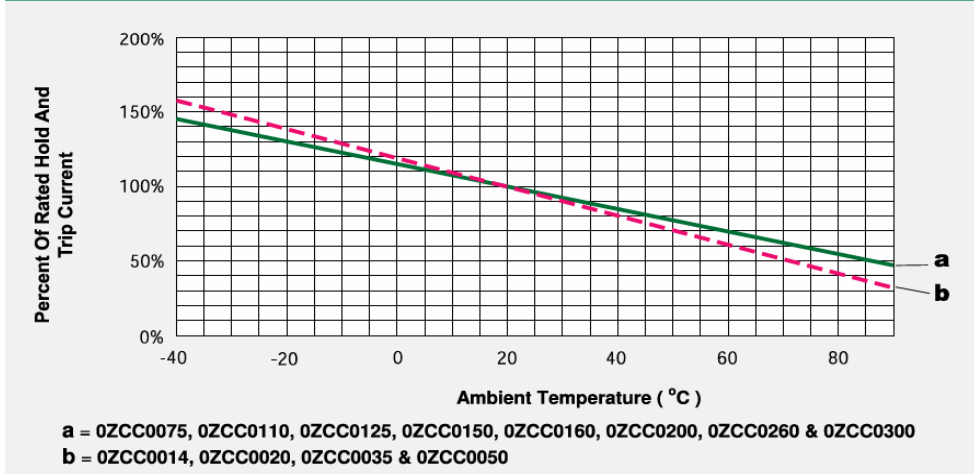


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### Typical Time - To - Trip at 23°C



### 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.

Specifications subject to change without notice

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