

DZ Series

Electro-Pyrotechnic Ignitor Chip Resistor



An ignitor resistor generates heat to ignite explosive material. In a digital electronic detonator, the ignitor resistor converts the electrical energy into heat energy to generate ignition. Its working principle is that the remote control charges the internal capacitor of the electronic control module, then the order of ignition is issued, and the capacitor is discharged through the ignitor.

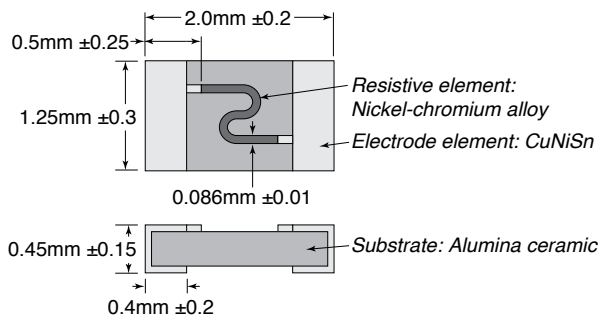
When compared to a traditional bridge wire, the ignitor resistor can accurately control the ignition time of the detonator. The ignitor resistor is the most critical factor that determines whether the entire digital electronic detonator can be successfully ignited.



SPECIFICATIONS

Part Number	Size	Value	Tolerance	Oper. temp range	TCR
DZ0805L2R0E		2Ω			±150ppm/°C
DZ0805L4R0E	0805	4Ω	7%	-40°C ~+85°C	(-40°C~+85°C, 25°C ref)
DZ0805L6R0E		6Ω			
DZ0805L8R0E		8Ω			

DIMENSIONS



PERFORMANCE

	Value	Test Method
"All Fire" voltage	14V (44μF capacitor discharge)	Capacitance discharge, capacitor is charged up to 14V then discharge initiator resistor, capture the highest temperature of active area.
"No Fire" voltage	8.5V (typical)	Capacitance discharge, capacitor is charged up to 8.5V then discharge initiator resistor, capture the highest temperature of active area
100% fusing	constant current 330mA, fusing time <12ms	Load with 330mA constant current, capture the surface temperature of the initiator resistor, and draw temperature curve, regard the point-in-time as fusing time when surface temperature reach the highest.
0% fusing	constant current 150mA, power-on time ≥10s	Load with 150mA constant current, capture the surface temperature of the initiator resistor, 10s on while the heat is transferred to substrate, regard the highest constant current as 0% fusing current
Surface temperature	Peak surface temperature: T > 500°C Fusing time: t > 200μs Ignition state: Ignition is concentrated in the middle of active area; T > 450°C, t ≥ 500μs Lot standard (typical): Same lot ≤35°C; Different lots ≤45°C	Capacitance discharge, capacitor is charged up to 16V then discharge initiator resistor, capture the highest temperature of active area.

FEATURES

- Using alumina ceramic substrate, the mechanical strength is far better than FR5 substrate. When the resistor is subjected to mechanical shock, external stress and reflow soldering, it will not damage the active area.
- Add a heat insulating layer on the substrate. In "All Fire", the heat generated by the current is enough to ignite the pyrotechnic material, will not be dissipated by the ceramic substrate in such a short time (down to 0.1ms); in "No Fire", the heat will dissipate through the ceramic substrate out in long duration such as 10s. It not only guarantees rapid ignition in "All Fire", but also guarantees safety in "No Fire".

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Test Limits	Test Method	
Resistance/Tolerance	No more than the nominal tolerance. CPK \geq 1.33	Refer to IEC 60115-1 (JIS C 5201-1), sub-clause 4.5
Resistance to soldering heat	$\Delta R \leq \pm(2.0\%+0.01\Omega)$; No mechanical damage. Electrical performance shall be satisfied.	Reflow soldering method: Peak temperature: $\leq 265^{\circ}\text{C}$, time $\leq 10\text{s}$ Temperature: $>220^{\circ}\text{C}$, time $\leq 60\text{s}$ Limited reflow times: 2 times The temperature shall be the board surface temperature; For other procedures, please refer to IEC 60115-(JIS C 5201-1), sub-clause 4.18
Solderability	A new uniform coating of solder shall cover minimum of 95% of the surface being immersed.	Temperature of solder: 235 \pm 5 $^{\circ}\text{C}$ (solder alloy: Sn-37Pb) 245 \pm 5 $^{\circ}\text{C}$ (solder alloy: Sn-3Ag-0.5Cu) Duration of immersion: 2 \pm 0.5s For other procedures, please refer to IEC 60115-1, sub-clause 4.17
Corrosion resistance	No failures such as changes in ignition performance will occur within 2 years, and the resistance value change is less than $\pm 1\%$.	Dipped in commonly used acid and alkali chemicals, resistor can be stored for 2 years.

The test method shall be as specified in IEC 60115-1 or JIS C 5201-1; The test environment is a standard atmospheric conditions.

Unless otherwise specified, the standard atmospheric pressure conditions for making measurements is as follows: Temperature: 5-35 $^{\circ}\text{C}$; Relative humidity: 45-85%RH; Air pressure: 86-106kPa

If there is any doubt about the measurement results, the test should be carried out in accordance with the following conditions: Temperature: 20 \pm 2 $^{\circ}\text{C}$; Relative humidity: 60-70%RH; Air pressure: 86-106kPa

ORDERING INFORMATION

D Z 0 8 0 5 L 6 R 0 E

Series	Size	Tolerance L=7%	Ohm value	RoHS Compliant
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Package

Tape and reel, 5000pcs/reel
Vacuum package with humidity indicator card inside.