



EPIC – ELECTRO-PYROTECHNIC INITIATOR CHIP RESISTOR



EPIC

Electro-Pyrotechnic Initiator Chip Resistor

FEATURES

- Firing energy down to 50 μ J
- Very fast firing time down to 50 μ s
 - Compatible with various pyrotechnic compositions, even those requiring no primer
- No fire/all fire ratio up to 70 %
- Standard dimensions (0603 chip resistor)
- Easy set-up of firing levels
- Predictable, reproducible, and reliable behavior

APPLICATIONS

- Automotive safety systems
- Mining and demolition equipment
- Pilot seat ejection systems
- Explosive bolt disengagement of airborne missiles
- Projectile activators
- Fireworks

Datasheet is available on our web site at www.vishay.com
for EPIC - <http://www.vishay.com/doc?53041>

Electro-Pyrotechnic Initiator Chip Resistor



FEATURES

Vishay has developed a special thin film resistor chip specifically designed to provide pyrotechnic engineers with a lot of advantages

- Firing energy down to 50 μ J
- Firing time down to 50 μ s
- Ohmic range: 2R to 10R
- Compatibility with various pyrotechnic composition even with no primer
- Joule effect ignition or flash ignition for very fast firing
- Easy set up by design of firing levels
- No fire/all fire ratio up to 70 %
- Very predictable, reproducible and reliable behaviour
- Size: 0603 preferred - other size available upon request

Electro-pyrotechnic initiator resistors, also known as bridge resistors, are resistive elements, which convert electrical energy into heat energy in a precise electro-thermal profile for the purpose of initiating a series of pyrotechnic events in a controlled energetic reaction. In automotive applications this effect is used to deploy automotive airbags and other safety devices. These same devices are also used in military applications for pilot ejection systems, explosive bolt disengagement of airborne missiles, chaff dispensers, artillery projectile activators, anti-tank mines, etc. Commercially, they are used in mining and de-constructions applications.

DIMENSIONS in millimeters (inches)



CASE SIZE	DIMENSION		
	A	B	C
0603	MAX. TOL. + 0.152 (0.006) MIN. TOL. - 0.152 (0.006)	MAX. TOL. + 0.127 (0.005) MIN. TOL. - 0.127 (0.005)	MAX. TOL. + 0.127 (0.005) MIN. TOL. - 0.127 (0.005)
	1.52 (0.060)	0.75 (0.030)	0.5 (0.020)

MECHANICAL SPECIFICATIONS

- Substrate: special alumina based substrate
- Resistive element: fine line patterned Tantalum nitride thin film layer
- Diffusion and conductive thin film layers
- Terminations: wraparound over nickel barrier

TECHNOLOGY

This technology contributes to the stability of the heating element, the precise electro-thermal response profile and the ability to design a precise activation energy.

All these features are perfectly controlled on high production volumes.

* Pb containing terminations are not RoHS compliant, exemptions may apply

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For technical questions, contact sfer@vishay.com

EXAMPLE OF APPLICATION

Chip: 0603
R: 2R \pm 0R2
Energy: around 1.5 mJ
Response time: 0.2 ms

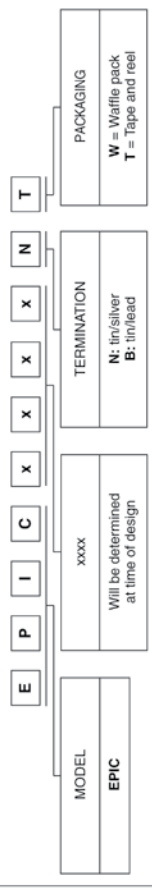
AIRBAGS INITIATORS

Bruceon's tests
2 customers: customer A and customer B have equipped squibs of their own with 3 variants (Variant 1, 2 and 3). Bruceon's test results of Vishay heating elements are shown in Table 1

HEATING ELEMENT	CUSTOMER A		CUSTOMER B	
	NF (in mA)	AF (in mA)	NF (in mA)	AF (in mA)
Variant 1	546	766	538	776
Variant 2	571	839	577	859
Variant 3	619	891	612	875

ORDERING PROCEDURE

New Global Part Numbering: EPICxxxxNT



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