



# DID YOU KNOW? EPIC / MEPIC CHIP RESISTOR

An igniter has two general states, all-fire and no-fire. Keeping the igniter's performance reliable and reproducible is a function of the active area of the device, to which an initiator manufacturer will apply a primary pyrotechnic material. The geometry of the active area of the EPIC / MEPIC, and both the primer chemistry and its impregnation method, will determine the global performances, which are directly linked to their active area. Mastering the dimensions and volume of the active area are thus key points to make the igniter very predictable. The user of the igniter must also of course be skilled in controlling the interactions between the active area and the pyrotechnic element. Vishay Sfernice manufacturing equipment contributes to EPIC / MEPIC reliability and precision with an automatic optical inspection (AOI) system.

Vishay Sfernice has developed two high-performance technologies to address a large performance spectrum with its EPIC and MEPIC devices. EPIC is a tantalum nitride (Ta<sub>2</sub>N) resistive layer over an alumina substrate. MEPIC is a nichrome (NiCr) resistive layer over an FR substrate.

In both cases, the principle of operation remains the same.

Under the all-fire condition (high current / short time), the pyrotechnic element is initiated by the heat generated (red arrows in Fig 1).

Under the no-fire condition (lower current, longer time), the heat is dissipated by the substrate (green arrows), which acts as a heat sink (Fig 2).

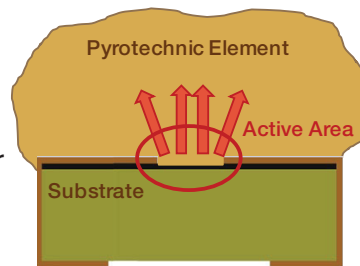


Fig 1

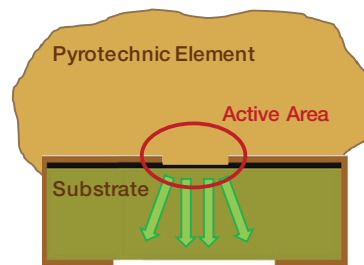
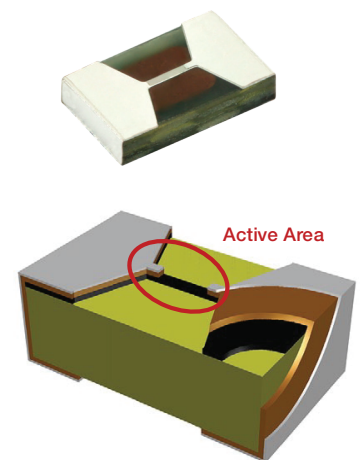


Fig 2



## Applications:

- Blasting for mining and demolition
- Seat ejection, missiles, and other military systems
- Motion picture special effects
- Automotive air bags