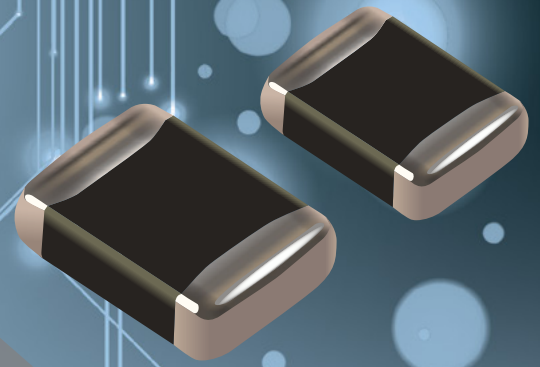


# NEW PRODUCT BRIEF



## Bourns® Model ZV50S2220452NIR1 High Surge Multilayer Varistor

### INTRODUCTION

The Bourns® Model ZV50S2220452NIR1 Multilayer Varistor delivers high surge protection capability in a compact 2220 surface mount (SMD) package. Offering a ruggedized design, Bourns' latest varistor features an surge current capability that is five times higher than that of the same size standard varistors. They also offer excellent transient energy absorption due to their improved energy volume distribution and power dissipation. These features and capabilities make them optimal overvoltage protection solutions for applications that need to operate in certain harsh environments.

### MARKET OVERVIEW APPLICATION FIT

These ruggedized multilayer varistors are specifically designed to meet the lifespan requirements in applications that operate in certain harsh environments. They also help customers satisfy requirements where elevated surge capabilities in a small component package size are required in space-constrained designs. There is only one other competitor offering this kind of product, making it a promising sales opportunity. Customers usually request at least two independent suppliers in an effort to mitigate supply chain risks.

### TYPICAL APPLICATIONS

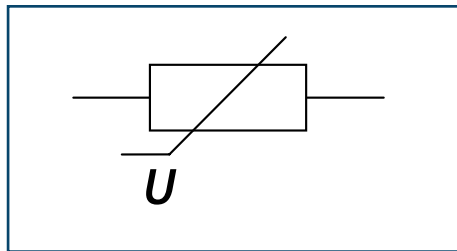
- Radio Remote Units (RRU) for 5G
- Power over Ethernet (PoE)
- Base stations
- Wireless infrastructure
- Measurement and control

\*RoHS Directive 2015/863, Mar 31, 2015 and Annex.

### FEATURES

- 63 VDC voltage range
- 50 VAC voltage range
- Response time of less than 2 nanoseconds
- Peak pulse surge current (8/20  $\mu$ s) of 4500A
- Operating temperature range of -55 to 125 °C
- RoHS compliant\*

### CIRCUIT SYMBOL



### BENEFITS

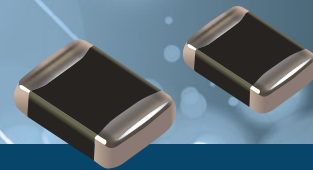
- High surge protection in a compact SMD footprint
- Surge current protection 5x higher than same size standard varistors
- Excellent transient energy absorption
- Enhanced energy volume distribution and power dissipation

### HOW TO ORDER

	ZV	50	S	2220	452	NI	R1
Series Designator	ZV = ZV Series						
Maximum Continuous Working Voltage ( $V_{rms}$ )	50 = 50 $V_{rms}$						
$V_n$ Tolerance	S = Special (see Device Rating Table in data sheet)						
Model Size	• 2220						
Maximum Surge Current (8/20 $\mu$ s)	• 452 = 4500 A						
End Terminations	• Ni = NiSn barrier type end terminations suitable for Pb and Pb-free reflow soldering (standard)						
Packaging	R1 = Reel 180 mm						

### ABSOLUTE MAXIMUM RATINGS

Parameter	Value	Units
<b>Continuous:</b>		
Steady State Applied Voltage		
DC Voltage ( $V_{dc}$ )	63	V
AC Voltage ( $V_{rms}$ )	50	V
<b>Transient:</b>		
Peak Single Pulse Surge Current, 8/20 $\mu$ s Waveform ( $I_{max}$ )	4500	A
Operating Ambient Temperature	-55 to +125	°C
Storage Temperature Range	-55 to +150	°C
Threshold Voltage Temperature Coefficient	< +0.05	%/°C
Response Time	< 2	ns
Climatic Category	55 / 125 / 56	—



## Bourns® Model ZV50S2220452NIR1 High Surge Multilayer Varistor

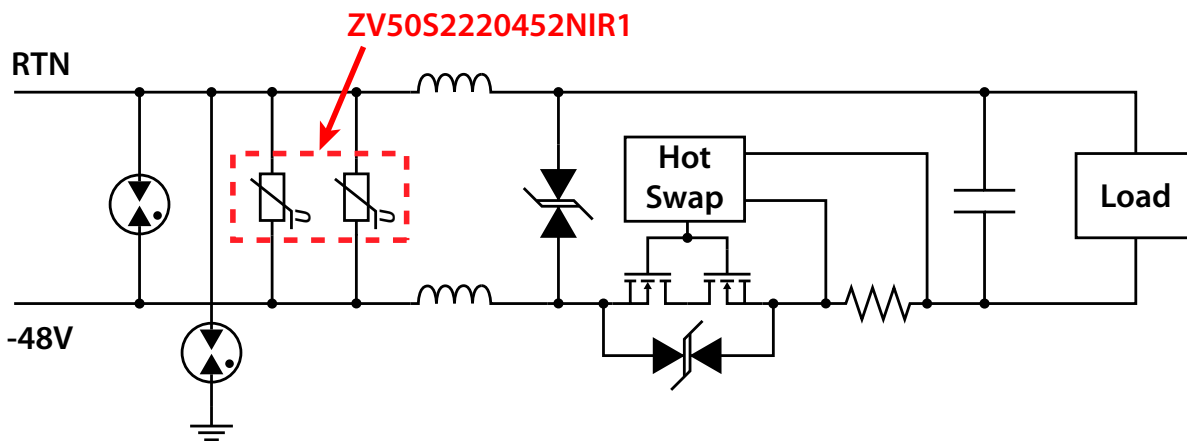
### ELECTRICAL CHARACTERISTICS

Model	$V_{rms}$	$V_{dc}$	$V_n$ @1 mA	$\Delta V_n$	$V_c$	$I_c$ 8/20 $\mu s$	P Max.	$I_{max}$ 8/20 $\mu s$	$C_p$ Typ. @ 1 kHz
	V	V	%	V	A	A	W	A	pF
ZV 50 S 2220 452 NIR1	50	63	77.5	$\pm 0.4$	115	10	0.020	4500	8800

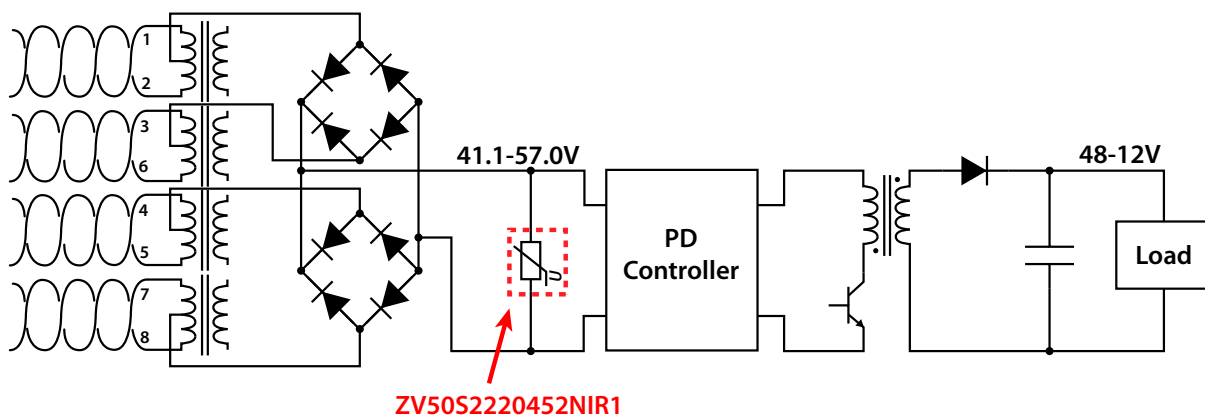
For full characteristics, see data sheet

### APPLICATION EXAMPLES

#### RRU for 5G



#### Power over Ethernet



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