

Metal Film Resistors, Pulse Withstanding Protective



FEATURES

- Special Vishay Dale design provides lightning withstand characteristics along with resistor functionality
- A thicker tin oxide power film system provides lightning surge absorption capabilities
- Higher turns ratio and glass substrate provide sharper fusing characteristic than the standard flameproof product line
- Protect against a variety of electrical hazards which can change or destroy sensitive electronic equipment including high energy voltage surges caused by power line anomalies (direct power crosses or inductively coupled effects) and other momentary overvoltages
- Lead (Pb)-Free version is RoHS Compliant



RoHS*
COMPLIANT

STANDARD ELECTRICAL SPECIFICATIONS					
GLOBAL MODEL	HISTORICAL MODEL	POWER RATING $P_{70^{\circ}C}$ W	RESISTANCE RANGE Ω	STANDARD TOLERANCE %	CUT-OFF VALUE
FP1/2P	FP1/2P	0.5	10R - 1M	1, 2, 5	2K00
FP001P	FP1P	1	10R - 1M	1, 2, 5	1K00
FP002P	FP2P	2	9R - 1M5	1, 2, 5	300R
FP003P	FP3P	3	9R - 1M	1, 2, 5	250R
FP069P	FP69P	2	2R6 - 1M	1, 2, 5	400R

Note: Pulse withstanding capabilities are value dependent.

Value above the cutoff value, shown above, will meet all the surge test requirements shown on next page.

MARKING	
	<ul style="list-style-type: none"> – DALE – Value – Tolerance – Style and case size – Date code (year/week)

GLOBAL PART NUMBER INFORMATION

New Global Part Numbering: FP002P1K00F9256B8 (preferred part numbering format)

F	P	0	0	2	P	1	K	0	0	F	9	2	5	6	B	8
GLOBAL MODEL (see Standard Electrical Specifications Table)		RESISTANCE VALUE R = Decimal K = Thousand M = Million 10R0 = 10 Ω 1K30 = 1.3K Ω 1M00 = 1.0M Ω				TOLERANCE CODE F = $\pm 1\%$ G = $\pm 2\%$ J = $\pm 5\%$		SPEC CODES 5555 = FP1/2P 6206 = FP001P 9256 = FP002P 9303 = FP003P 7532 = FP069P			PACKAGING EK = Lead Free, Bulk EA = Lead Free, T/R B8 = Tin/Lead, Bulk CH = Tin/Lead, T/R (750pcs) CJ = Tin/Lead, T/R (1000pcs)					

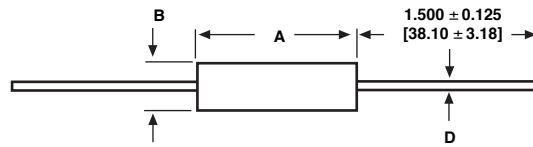
Historical Part Number: FP2P1K001% (will continue to be accepted)

FP2P	1K00	1%	B8
HISTORICAL MODEL	RESISTANCE VALUE	TOLERANCE CODE	PACKAGING

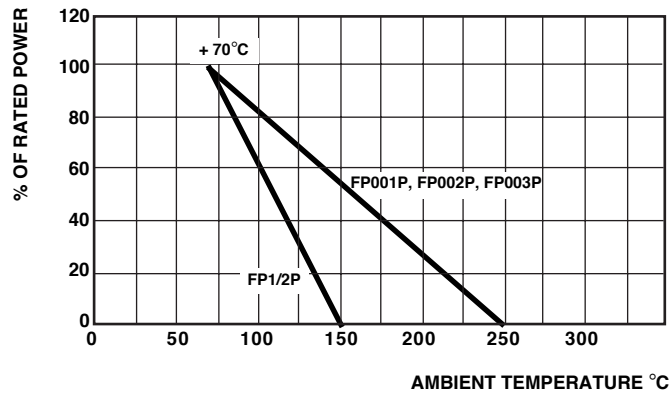
Note: Some packaging codes are model specific.

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

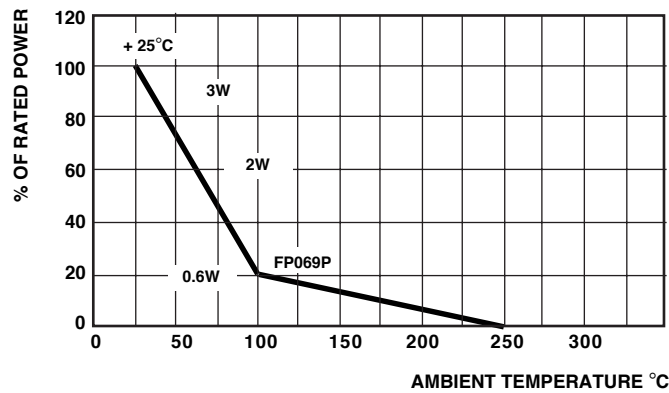
DIMENSIONS in inches [millimeters]



GLOBAL MODEL	DIMENSIONS in inches [millimeters]		
	A	B	D
FP1/2P	0.360 ± 0.020 [9.14 ± 0.51]	0.138 + 0.012 - 0.023 [3.51 + 0.31 - 0.58]	0.032 ± 0.002 [0.81 ± 0.05]
FP001P	0.560 ± 0.031 [14.22 ± 0.79]	0.190 + 0.007 - 0.015 [4.83 + 0.18 - 0.38]	0.032 ± 0.002 [0.81 ± 0.05]
FP002P	0.687 ± 0.031 [17.45 ± 0.79]	0.300 ± 0.020 [7.62 ± 0.51]	0.032 ± 0.002 [0.81 ± 0.05]
FP003P	0.900 ± 0.055 [22.86 ± 1.40]	0.300 ± 0.020 [7.62 ± 0.51]	0.032 ± 0.002 [0.81 ± 0.05]
FP069P	0.516 ± 0.021 [13.11 ± 0.53]	0.225 ± 0.012 [5.72 ± 0.31]	0.032 ± 0.002 [0.81 ± 0.05]



DERATING



DERATING

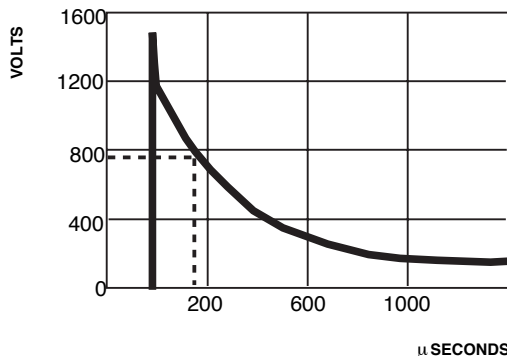


LIGHTNING PULSE WAVE FORMS

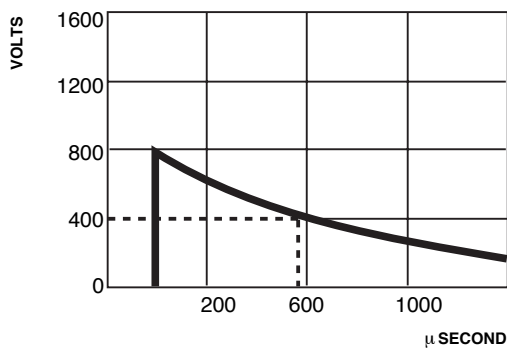
Lightning pulse wave forms are defined by three numbers:

- Maximum time to reach peak voltage level (typically 10 μ seconds).
- Minimum time for voltage to decrease to half value.
- The peak voltage level.

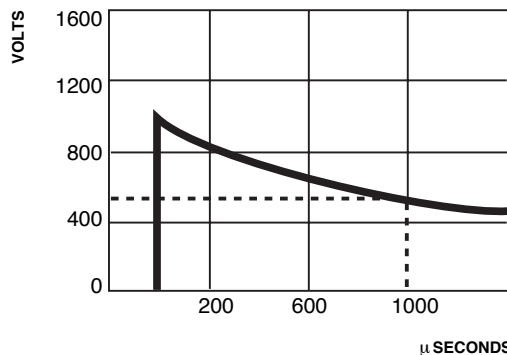
Three examples are shown below.



10 by 160 — 1500 Volts FCC — Longitudinal Surge



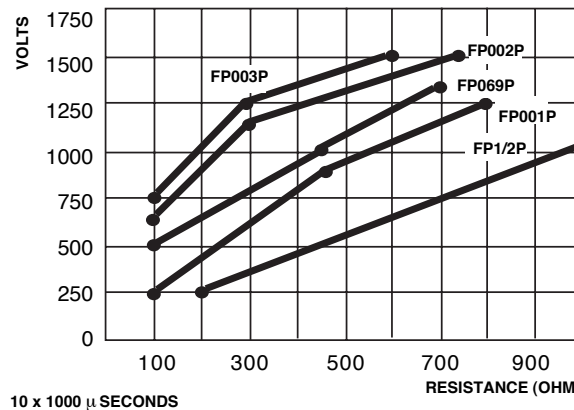
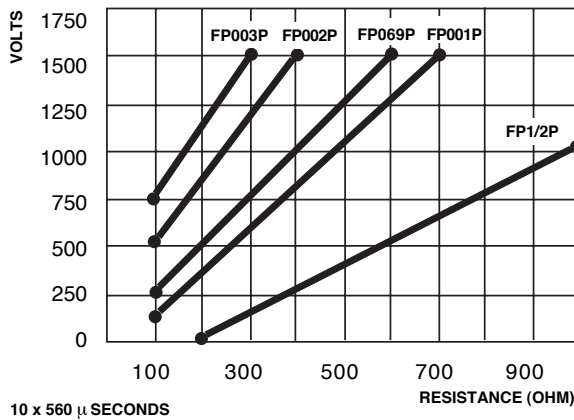
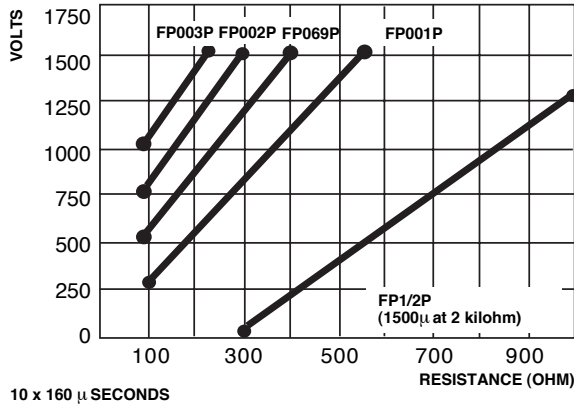
10 by 560 — 800 Volts FCC — Metallic Surge



10 by 1000 — 1000 Volts REA — Current Surge



These graphs show the relationship between resistance value and pulse withstanding voltage for FP1/2P thru FP003P using a 1.0% resistance shift after 10 pulses as the figure of merit. The stable operating region of each package is on the right side of the appropriate line.





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