FP..F



www.vishay.com

Vishay Dale

Metal Film Resistors, Pulse Withstanding Protective



FEATURES

- Special Vishay Dale design provides lightning withstand characteristics along with resistor functionality
- Pb-free
 Available
- 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
- RoHS*
- 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
- Material categorization: For definitions of compliance please see <u>www.vishav.com/doc?99912</u>

Note

* Lead (Pb)-containing terminations are not RoHS-compliant. Exemptions may apply.

STANDARD ELECTRICAL SPECIFICATIONS					
GLOBAL MODEL	HISTORICAL MODEL	POWER RATING P _{70°C} W	RESISTANCE RANGE (2) Ω	TOLERANCE ± %	CUTOFF VALUE (1)
FP1/2P	FP1/2P	0.5	10 to 1M	1, 2, 5	2K00
FP001P	FP1P	1	10 to 1M	1, 2, 5	1K00
FP002P	FP2P	2	355 to 125K	1, 2, 5	355R
FP003P	FP3P	3	46.4 to 125K	1, 2, 5	250R
FP069P	FP69P	2	25 to 126K	1, 2, 5	400R

Notes

- 1) Pulse withstanding capabilities are value dependent. Values above the cutoff value will meet all of the surge test requirements shown on the following pages.
- (2) Contact factory for values outside these published ranges.

MARKING		
	- DALE - Value	
	- Tolerance - Style and case size - Date code (year/week)	

GLOBAL PART NUMBER INFORMATION					
New Global Part Num	bering: FP002P1K00F925	6B8 (preferred par		ing format) F 9 2 5	6 B 8
GLOBAL MODEL	RESISTANCE VALUE	TOLERANCE	CODE	SPEC CODES	PACKAGING ⁽³⁾
(See Standard Electrical	$\mathbf{R} = \Omega$ $\mathbf{K} = \mathbf{k}\Omega$	F = ± 1 % G = ± 2 %	%	5555 = FP1/2P 6206 = FP001P	EK = Lead (Pb)-free, strip EA = Lead (Pb)-free, T/R
Specifications table)	M = MΩ 10R0 = 10 $Ω$ 1K30 = 1.3 $kΩ$ 1M00 = 1.0 $MΩ$	J = ± 5 %	0	9256 = FP002P 9303 = FP003P 7532 = FP069P	B8 = Tin/lead, strip CH = Tin/lead, T/R (750 pieces) CJ = Tin/lead, T/R (1000 pieces)
Historical Part Number: FP2P 1K00 1 % B8 (will continue to be accepted)					
FP2P		K00		1 %	B8
HISTORICAL MODEL RESISTA		NCE VALUE	TOLERANCE CODE		PACKAGING

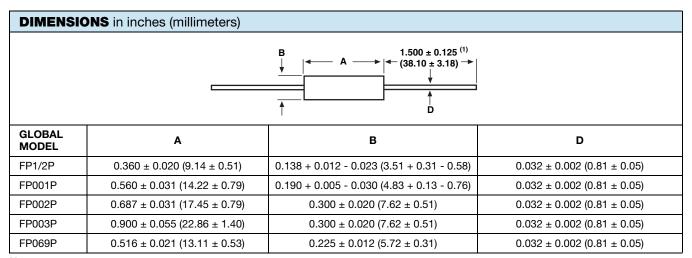
Notes

- ⁽³⁾ Some packaging codes are model specific.
- (4) For additional information on packaging, refer to the Through Hole Resistor Packaging document (www.vishay.com/doc?31544).



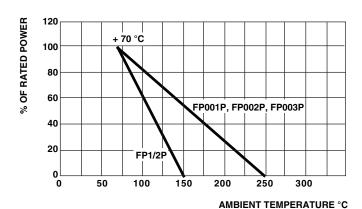
www.vishay.com

Vishay Dale

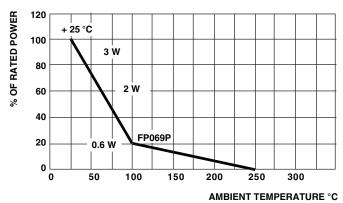


Note

⁽¹⁾ Lead length for product in strip pack. For product supplied in Tape and Reel, the actual lead length would be based on the body size, tape spacing and lead trim.



DERATING



DERATING



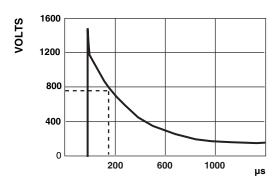
Vishay Dale

LIGHTNING PULSE WAVE FORMS

Lightning pulse wave forms are defined by three numbers:

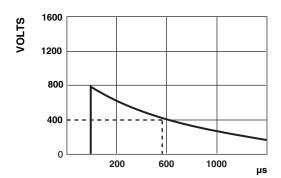
- Maximum time to reach peak voltage level (typically 10 μs)
- Minimum time for voltage to decrease to half value
- The peak voltage level

Three examples are shown below.



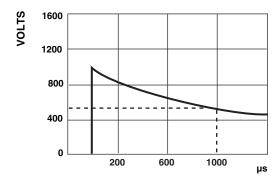
10 by 160 µs up to 1500 V

FCC - Longitudinal Surge



10 by 560 µs up to 800 V

FCC - Metallic Surge



10 by 1000 μs up to 1000 V

REA - Current Surge

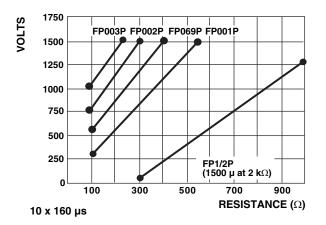


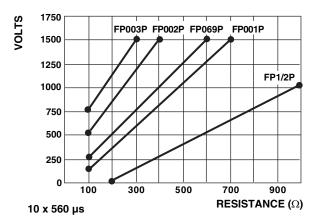


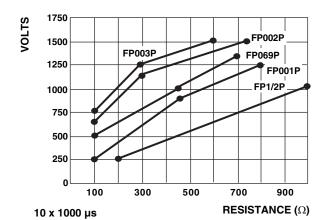
www.vishay.com

Vishay Dale

These graphs show the relationship 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.







PACKAGING					
GLOBAL MODEL	PACKAGING TYPE	PACKAGING CODE			
GLOBAL WIODEL	PACKAGING TIPE	LEAD (Pb)-BEARING	LEAD (Pb)-FREE		
FP1/2P, FP001P, FP069P	Strip	B8	EK		
	Tape/reel	CJ	EA		
FP002P, FP003P	Strip	B8	EK		
FP002P, FP003P	Tape/reel	СН	EA		



Legal Disclaimer Notice

Vishay

Disclaimer

ALL PRODUCT, PRODUCT SPECIFICATIONS AND DATA ARE SUBJECT TO CHANGE WITHOUT NOTICE TO IMPROVE RELIABILITY, FUNCTION OR DESIGN OR OTHERWISE.

Vishay Intertechnology, Inc., its affiliates, agents, and employees, and all persons acting on its or their behalf (collectively, "Vishay"), disclaim any and all liability for any errors, inaccuracies or incompleteness contained in any datasheet or in any other disclosure relating to any product.

Vishay makes no warranty, representation or guarantee regarding the suitability of the products for any particular purpose or the continuing production of any product. To the maximum extent permitted by applicable law, Vishay disclaims (i) any and all liability arising out of the application or use of any product, (ii) any and all liability, including without limitation special, consequential or incidental damages, and (iii) any and all implied warranties, including warranties of fitness for particular purpose, non-infringement and merchantability.

Statements regarding the suitability of products for certain types of applications are based on Vishay's knowledge of typical requirements that are often placed on Vishay products in generic applications. Such statements are not binding statements about the suitability of products for a particular application. It is the customer's responsibility to validate that a particular product with the properties described in the product specification is suitable for use in a particular application. Parameters provided in datasheets and / or specifications may vary in different applications and performance may vary over time. All operating parameters, including typical parameters, must be validated for each customer application by the customer's technical experts. Product specifications do not expand or otherwise modify Vishay's terms and conditions of purchase, including but not limited to the warranty expressed therein.

Except as expressly indicated in writing, Vishay products are not designed for use in medical, life-saving, or life-sustaining applications or for any other application in which the failure of the Vishay product could result in personal injury or death. Customers using or selling Vishay products not expressly indicated for use in such applications do so at their own risk. Please contact authorized Vishay personnel to obtain written terms and conditions regarding products designed for such applications.

No license, express or implied, by estoppel or otherwise, to any intellectual property rights is granted by this document or by any conduct of Vishay. Product names and markings noted herein may be trademarks of their respective owners.

Mouser Electronics

Authorized Distributor

Click to View Pricing, Inventory, Delivery & Lifecycle Information:

Vishay:

FP069P220KF7532B8 FP002P448RD9256B8 FP002P402RD9256B8 FP001P1K80G6206KR FP002P470RD9256B8 FP1\2P15K0F5555A5 FP002P360RD9256B8 FP069P100KJ7532B8 FP002P10K0J9256B8 FP1\2P30K1F5555BF FP002P2K20J9256B8 FP002P825RF9256B8 FP002P10R0G9256B8 FP002P680RJ9256B8 FP1\2P56R2F5555BF FP002P200RD9256B8 FP002P100RF9256B8 FP002P137RD9256CH FP002P180RD9256B8 FP002P464RF9256B8 FP002P5K60G9256B8 FP002P10K0G9256B8 FP1\2P5K62F5555BF FP2P-432K-1% FP002P240RJ9256B8 FP1/2P1K00F5555B8 FP002P390KF9256B8 FP2P 210K 5% FP002P390KJ9256B8 FP001P10R0J6206B8 FP002P820RG9256CF FP2P 51 5% FP001P100RF6206C3 FP2P 2.74K 1% FP2P 210K 1% FP69P 499 5%TR FP001P100RF6206CF FP1/2P100RJ5555B8 FP002P2K22J9256B8 FP2P-301K-1% FP002P200KF9256B8 FP002P750KF9256B8 FP003P390KF9303B8 FP1\2P34K0F5555BF FP1\2P49R9F5555BF FP069P5K00J7532B8 FP002P2K00G9256B8 FP069P499RJ7532B8 FP069P270KJ7532B8 FP002P1K20G9256B8 FP002P200KJ9256B8 FP069P1K30F7532B8 FP069P1K50F7532B8 FP002P680KJ9256B8 FP002P68K0J9256B8 FP002P47R0J9256B8 FP069P20R0J7532B8 FP003P200KF9303B8 FP069P51R1F7532B8 FP002P2K40F9256B8 FP002P130RF9256B8 FP069P100RJ7532B8 FP002P1M00J9256B8 FP1\2P10K0F5555BF FP002P47R0G9256B8 FP002P750RJ9256B8 FP001P47R0F6204B8 FP1\2P39K2F5555BF FP002P10R0J9256B8 FP001P18R0J6204B8 FP1\2P100KJ5555BF FP069P1K00F7532B8 FP1/2P 150 1% FP2P 2.4K 1%TR5 FP2P 2.7K 5% FP3P 2K 5% FP69P 200 1% FP69P 5.1K 1%TR FP1P 100 1% FP2P 1M 5% FP1/2P2K20J5555B8 FP2P 470 5% FP002P750RJ9256CF FP002P22R0J9256EK FP1/2P150RF5555B8 FP002P39R0J9256EK FP069P200RF7532B8