HVCB0805FDC2M21 Datasheet

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DiGi Electronics Part Number	HVCB0805FDC2M21-DG
Manufacturer	Stackpole Electronics Inc
Manufacturer Product Number	HVCB0805FDC2M21
Description	RES 2.21M OHM 1% 1/5W 0805
Detailed Description	2.21 MOhms ±1% 0.2W, 1/5W Chip Resistor 0805 (2012 Metric) High Voltage, Moisture Resistant, Pulse Withstanding Thick Film

This model HVCB0805FDC2M21 is available at DiGi Electronics.

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Purchase and inquiry

Manufacturer Product Number:	Manufacturer:
HVCB0805FDC2M21	Stackpole Electronics Inc
Series:	Product Status:
HVC	Active
Resistance:	Tolerance:
2.21 MOhms	±1%
Power (Watts):	Composition:
0.2W, 1/5W	Thick Film
Features:	Temperature Coefficient:
High Voltage, Moisture Resistant, Pulse Withstanding	±50ppm/°C
Operating Temperature:	Package / Case:
-55°C ~ 150°C	0805 (2012 Metric)
Supplier Device Package:	Size / Dimension:
0805	0.079" L x 0.050" W (2.01mm x 1.27mm)
Height - Seated (Max):	Number of Terminations:
0.025" (0.64mm)	2
Failure Rate:	
-	

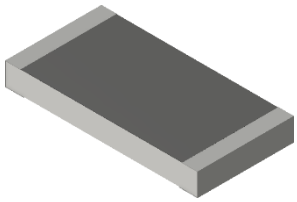
Environmental & Export classification

RoHS Status:	Moisture Sensitivity Level (MSL):
ROHS3 Compliant	1 (Unlimited)
REACH Status:	ECCN:
REACH Unaffected	EAR99
HTSUS:	
8533.21.0030	

HVC Series

Precision High Voltage Chip Resistor

Stackpole Electronics, Inc.
Resistive Product Solutions



Features:

- Available with wire bondable terminations
- Utilizes fine film resistor deposition technology
- Superior pulse handling capabilities
- Low TCR to 25 ppm/ºC
- VCR as low as 1 ppm/volt
- Very low noise
- Ultra-high stability
- Higher (up to 1TΩ) or lower resistance values may be available (contact Stackpole)
- RoHS compliant, REACH compliant, and halogen free

Electrical Specifications

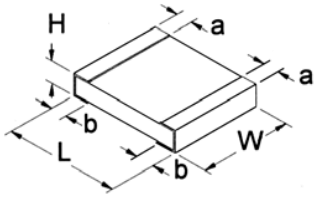
Type / Code	Power Rating (W) @ 70ºC	Maximum Working Voltage (V) (1)	TCR (ppm/ºC)	Ohmic Range (Ω) and Tolerance							
				0.1%	0.25%	0.5%	1%	2%	5%	10%	20%
HVC0603	0.06	400	±50	-		10K - 10M	10K - 100M	10K - 500M			
			±100				10K - 500M	10K - 1G		10K - 1G	
			±200							10K - 10G	10K - 50G
HVC0805	0.2	600	±50	-		10K - 10M	10K - 500M				
			±100				10K - 1G		10K - 1G		
			±200						10K - 10G		10K - 50G
HVC1206	0.33	1500	±25	1M - 100M	1M - 100M						
			±50	100K - 100M	100K - 100M	100K - 500M					
			±100	10K - 100M	10K - 100M	10K - 500M	10K - 1G	10K - 1G			
			±200					10K - 10G			10K - 50G
HVC2010	1	2000	±25	1M - 100M	1M - 100M						
			±50	100K - 100M	100K - 100M	100K - 500M					
			±100	10K - 100M	10K - 100M	10K - 500M	10K - 1G	10K - 1G			
			±200					10K - 10G			10K - 50G
HVC2512	2	3000	±25	1M - 100M	1M - 500M						
			±50	100K - 100M	100K - 500M	100K - 1G					
			±100	10K - 100M	10K - 500M	10K - 1G	10K - 10G			100K - 10G	
			±200							100K - 50G	
HVC3512	3	3500	±25	1M - 100M	1M - 500M						
			±50	100K - 100M	100K - 500M	100K - 1G					
			±100	10K - 100M	10K - 500M	10K - 1G	10K - 10G			100K - 10G	
			±200							100K - 50G	

Proper terminal isolation is required to achieve the voltage ratings for each given size.
(1) The continuous maximum voltage applied cannot exceed the maximum power rating and is ohmic value dependent.
Note: Other case sizes and tolerances are available.

HVC Series
Precision High Voltage Chip Resistor

Stackpole Electronics, Inc.
Resistive Product Solutions

Mechanical Specifications



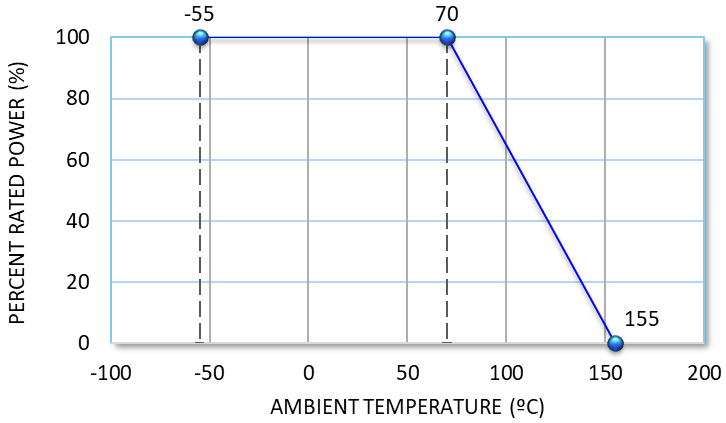
Type/Code	L Body Length	W Body Width	H Body Height (Max.)	a Top Termination	b Bottom Termination	Unit
HVC0603	0.063 ± 0.01 1.60 ± 0.25	0.031 ± 0.01 0.79 ± 0.13	0.020 0.51	0.010 ± 0.01 0.25 ± 0.13	0.012 ± 0.01 0.30 ± 0.2	inches mm
HVC0805	0.079 ± 0.01 2.01 ± 0.25	0.050 ± 0.01 1.27 ± 0.13	0.025 0.64	0.010 ± 0.01 0.25 ± 0.13	0.013 ± 0.01 0.33 ± 0.2	inches mm
HVC1206	0.126 ± 0.01 3.20 ± 0.25	0.063 ± 0.01 1.60 ± 0.13	0.030 0.76	0.010 ± 0.01 0.25 ± 0.13	0.020 ± 0.01 0.51 ± 0.25	inches mm
HVC2010	0.200 ± 0.01 5.08 ± 0.25	0.100 ± 0.01 2.54 ± 0.13	0.030 0.76	0.018 ± 0.01 0.46 ± 0.25	0.020 ± 0.01 0.51 ± 0.25	inches mm
HVC2512	0.250 ± 0.01 6.35 ± 0.25	0.125 ± 0.01 3.18 ± 0.13	0.030 0.76	0.020 ± 0.01 0.51 ± 0.25	0.024 ± 0.01 0.61 ± 0.25	inches mm
HVC3512	0.350 ± 0.01 8.89 ± 0.25	0.125 ± 0.01 3.18 ± 0.13	0.030 0.76	0.020 ± 0.01 0.51 ± 0.25	0.024 ± 0.01 0.61 ± 0.25	inches mm

Performance Characteristics

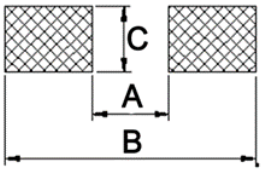
Test	Typical Performance
Short Time Overload	0.1%
Load Life	0.1%
Temperature Cycle	0.1%
Moisture Resistance	0.1%
Shock	0.05%
Vibration	0.05%
Dielectric Withstanding Voltage	0.05%
Resistance to Soldering Heat	0.05%
Parameter	**Typical**
TCR	measured from 25°C to 75°C
VCR	0.5 ppm/volt to 15 ppm/volt
Pulse Capability	10X rated wattage Consult Stackpole for custom pulse applications
Resistance Value	Measured at 100V Consult Stackpole for custom test voltages

Operating temperature range is -55ºC to +155ºC

Power Derating Curve:



Recommended Pad Layout



Type/Code	A	B	C	Unit
HVC0603	0.031 0.80	0.083 2.10	0.035 0.90	inches mm
HVC0805	0.047 1.20	0.118 3.00	0.051 1.30	inches mm
HVC1206	0.087 2.20	0.165 4.20	0.063 1.60	inches mm
HVC2010	0.138 3.50	0.240 6.10	0.110 2.80	inches mm
HVC2512	0.193 4.90	0.315 8.00	0.138 3.50	inches mm
HVC3512	0.290 7.37	0.415 10.54	0.138 3.50	inches mm

Recommended Solder Profile

This information is intended as a reference for solder profiles for Stackpole resistive components. These profiles should be compatible with most soldering processes. These are only recommendations. Actual numbers will depend on board density, geometry, packages used, etc., especially those cells labeled with "*".

100% Matte Tin / RoHS Compliant Terminations

Soldering iron recommended temperatures: 330°C to 350°C with minimum duration.
Maximum number of reflow cycles: 3.

Wave Soldering

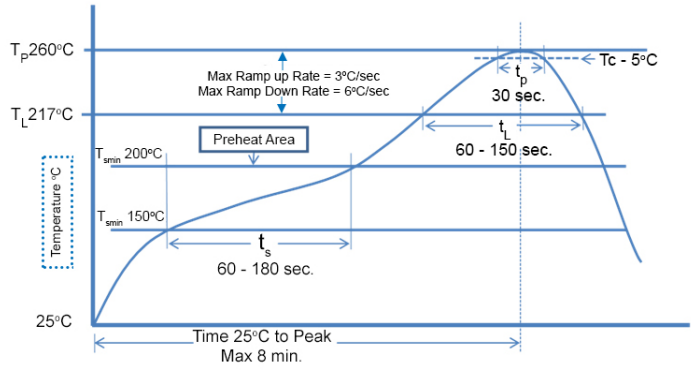
Description	Maximum	Recommended	Minimum
Preheat Time	80 seconds	70 seconds	60 seconds
Temperature Diff.	140°C	120°C	100°C
Solder Temp.	260°C	250°C	240°C
Dwell Time at Max.	10 seconds	5 seconds	*
Ramp DN (°C/sec)	N/A	N/A	N/A

Temperature Diff. = Difference between final preheat stage and soldering stage.

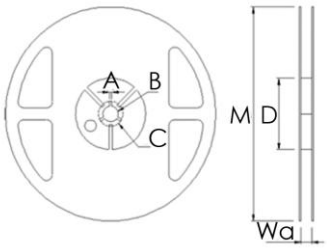
Convection IR Reflow

Description	Maximum	Recommended	Minimum
Ramp Up (°C/sec)	3°C/sec	2°C/sec	*
Dwell Time > 217°C	150 seconds	90 seconds	60 seconds
Solder Temp.	260°C	245°C	*
Dwell Time at Max.	30 seconds	15 seconds	10 seconds
Ramp DN (°C/sec)	6°C/sec	3°C/sec	*

Recommended Resistor Reflow Profile

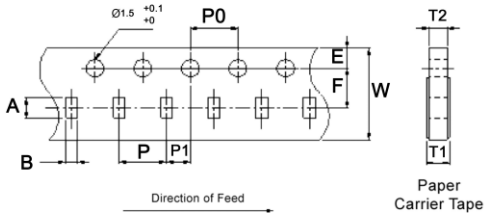


Reel Specifications



Reel Type	Wa	M	A	B	C	D	Unit
7" reel for 8 mm tape	0.354 ± 0.020 9.00 ± 0.50	7.008 ± 0.079 178.00 ± 2.00	0.079 ± 0.020 2.00 ± 0.50	0.531 ± 0.020 13.50 ± 0.50	0.827 ± 0.020 21.00 ± 0.50	2.362 ± 0.039 60.00 ± 1.00	inches mm

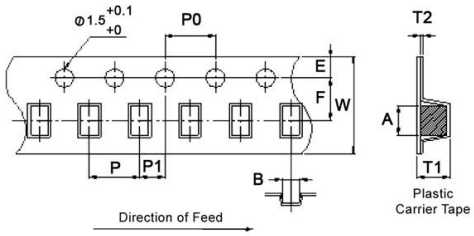
Packaging Specifications - Paper Tape



Type/Code	Reel Quantity	Typical Full Reel Weight (g)	Tape Width	A	B	W	E	Unit
HVC0603	5000	118.3 ± 11.0	0.315 8.00	0.071 ± 0.008 1.80 ± 0.20	0.041 ± 0.008 1.05 ± 0.20	0.315 ± 0.008 8.00 ± 0.20	0.069 ± 0.004 1.75 ± 0.10	inches mm
HVC0805	5000	139.2 ± 13.0	0.315 8.00	0.093 ± 0.010 2.35 ± 0.25	0.063 ± 0.010 1.60 ± 0.25	0.315 ± 0.008 8.00 ± 0.20	0.069 ± 0.004 1.75 ± 0.10	inches mm
HVC1206	4000	151.4 ± 15.0	0.315 8.00	0.140 ± 0.010 3.55 ± 0.25	0.077 ± 0.010 1.95 ± 0.25	0.315 ± 0.008 8.00 ± 0.20	0.069 ± 0.004 1.75 ± 0.10	inches mm

Type/Code	F	T1	T2	P	P0	P1	Unit
HVC0603	0.138 ± 0.002 3.50 ± 0.05	0.024 ± 0.008 0.60 ± 0.20	0.024 ± 0.004 0.60 ± 0.10	0.157 ± 0.004 4.00 ± 0.10	0.157 ± 0.004 4.00 ± 0.10	0.079 ± 0.002 2.00 ± 0.05	inches mm
HVC0805	0.138 ± 0.002 3.50 ± 0.05	0.030 ± 0.008 0.75 ± 0.20	0.030 ± 0.004 0.75 ± 0.10	0.157 ± 0.004 4.00 ± 0.10	0.157 ± 0.004 4.00 ± 0.10	0.079 ± 0.002 2.00 ± 0.05	inches mm
HVC1206	0.138 ± 0.002 3.50 ± 0.05	0.030 ± 0.008 0.75 ± 0.20	0.030 ± 0.004 0.75 ± 0.10	0.157 ± 0.004 4.00 ± 0.10	0.157 ± 0.004 4.00 ± 0.10	0.079 ± 0.002 2.00 ± 0.05	inches mm

Packaging Specifications - Plastic Tape



Type/Code	Reel Quantity	Typical Full Reel Weight (g)	Tape Width	A	B	W	E	Unit
HVC2010	4000	183.1 ± 18.0	0.472 12.00	0.217 ± 0.012 5.50 ± 0.30	0.110 ± 0.008 2.80 ± 0.20	0.472 ± 0.008 12.00 ± 0.20	0.069 ± 0.004 1.75 ± 0.10	inches mm
HVC2512	2000	255.3 ± 25.0	0.472 12.00	0.264 ± 0.008 6.70 ± 0.20	0.134 ± 0.008 3.40 ± 0.20	0.472 ± 0.008 12.00 ± 0.20	0.069 ± 0.004 1.75 ± 0.10	inches mm
HVC3512	1000	255.3 ± 25.0	0.472 12.00	0.370 ± 0.004 9.40 ± 0.10	0.154 ± 0.004 3.90 ± 0.10	0.945 ± 0.012 24.00 ± 0.30	0.069 ± 0.004 1.75 ± 0.10	inches mm

Packaging Specifications - Plastic Tape (cont.)							
Type/Code	F	T1	T2	P	P0	P1	Unit
HVC2010	0.217 ± 0.002 5.50 ± 0.05	0.041 ± 0.008 1.05 ± 0.20	0.009 ± 0.006 0.23 ± 0.15	0.157 ± 0.004 4.00 ± 0.10	0.157 ± 0.004 4.00 ± 0.10	0.079 ± 0.002 2.00 ± 0.05	inches mm
HVC2512	0.217 ± 0.002 5.50 ± 0.05	0.041 ± 0.008 1.05 ± 0.20	0.009 ± 0.006 0.23 ± 0.15	0.157 ± 0.004 4.00 ± 0.10	0.157 ± 0.004 4.00 ± 0.10	0.079 ± 0.002 2.00 ± 0.05	inches mm
HVC3512	0.453 ± 0.004 11.50 ± 0.10	0.041 ± 0.008 1.05 ± 0.20	0.009 ± 0.006 0.23 ± 0.15	0.157 ± 0.004 4.00 ± 0.10	0.157 ± 0.004 4.00 ± 0.10	0.079 ± 0.002 2.00 ± 0.05	inches mm

Part Marking
Parts are unmarked.

RoHS Compliance

Stackpole Electronics has joined the worldwide effort to reduce the amount of lead in electronic components and to meet the various regulatory requirements now prevalent, such as the European Union's directive regarding "Restrictions on Hazardous Substances" (RoHS 3). As part of this ongoing program, we periodically update this document with the status regarding the availability of our compliant components. All our standard part numbers are compliant to EU Directive 2011/65/EU of the European Parliament as amended by Directive (EU) 2015/863/EU as regards the list of restricted substances.

RoHS Compliance Status						
Standard Product Series	Description	Package / Termination Type	Standard Series RoHS Compliant	Lead-Free Termination Composition	Lead-Free Mfg. Effective Date (Std Product Series)	Lead-Free Effective Date Code (YY/WW)
HVC	Precision High Voltage Chip Resistor	SMD	YES(1)	100% Matte Sn ("T")	Always	Always

Note (1): RoHS Compliant by means of exemption 7c-I.

"Conflict Metals" Commitment

We at Stackpole Electronics, Inc. are joined with our industry in opposing the use of metals mined in the "conflict region" of the eastern Democratic Republic of the Congo (DRC) in our products. Recognizing that the supply chain for metals used in the electronics industry is very complex, we work closely with our own suppliers to verify to the extent possible that the materials and products we supply do not contain metals sourced from this conflict region. As such, we are in compliance with the requirements of Dodd-Frank Act regarding Conflict Minerals.

Compliance to "REACH"

We certify that all passive components supplied by Stackpole Electronics, Inc. are SVHC (Substances of Very High Concern) free and compliant with the requirements of EU Directive 1907/2006/EC, "The Registration, Evaluation, Authorization and Restriction of Chemicals", otherwise referred to as REACH. Contact us for complete list of REACH Substance Candidate List.

Environmental Policy

It is the policy of Stackpole Electronics, Inc. (SEI) to protect the environment in all localities in which we operate. We continually strive to improve our effect on the environment. We observe all applicable laws and regulations regarding the protection of our environment and all requests related to the environment to which we have agreed. We are committed to the prevention of all forms of pollution.

HVC Series
Precision High Voltage Chip Resistor

Stackpole Electronics, Inc.
Resistive Product Solutions

How to Order

H	V	C	B	2	5	1	2	F	K	C	1	0	M	0

Product Series	
Code	Description
HVCB	Solderable wraparound (100% matte tin)
HVCG	Wire bondable (gold)
HVCS	Solderable single surface (Sn/Pb)
HVCZ	Solderable single surface (100% matte tin)

Size	
Code	W
0603	0.06
0805	0.2
1206	0.33
2010	1
2512	2
3512	3

Tolerance	
Code	Tol
B	0.1%
C	0.25%
D	0.5%
F	1%
G	2%
J	5%
K	10%
M	20%

Packaging			
Code	Description	Size	Quantity
T	7" Reel - Paper Tape	0603, 0805	5000
		1206	4000
	7" Reel - Plastic Tape	2010	4000
		2512	2000
K	7" Reel - Paper Tape	0603, 0805, 1206	1000
	7" Reel - Plastic Tape	2010, 2512, 3512	1000
D	7" Reel - Paper Tape	0603, 0805, 1206	500
	7" Reel - Plastic Tape	2010, 2512, 3512	500

TCR	
Code	ppm
E	25
C	50
D	100
L	200
M	300

Resistance Value
Four characters with the multiplier used as the decimal holder.
10 Kohm = 10K0 1 Mohm = 1M00 10 Gohm = 10G0

OUR CERTIFICATE

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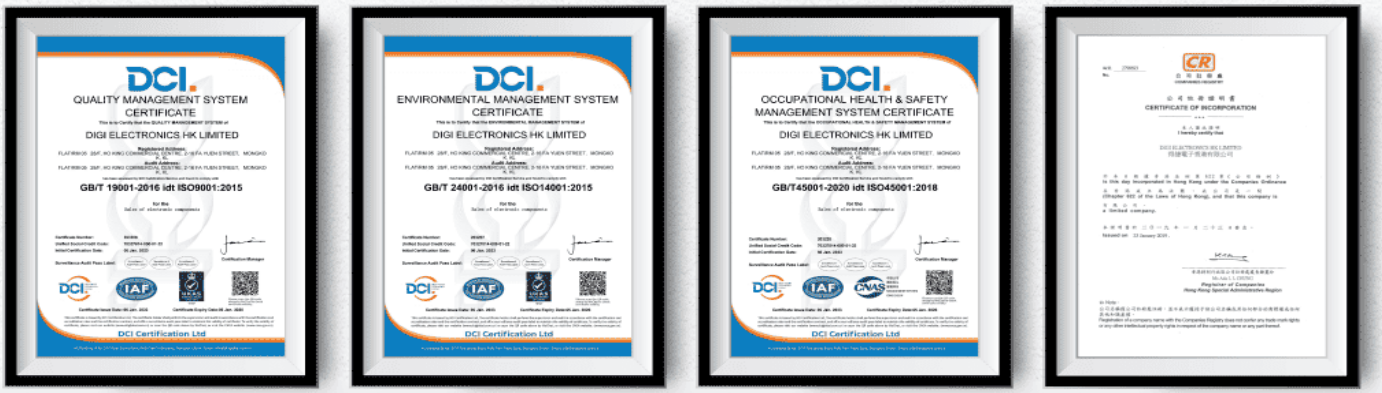

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