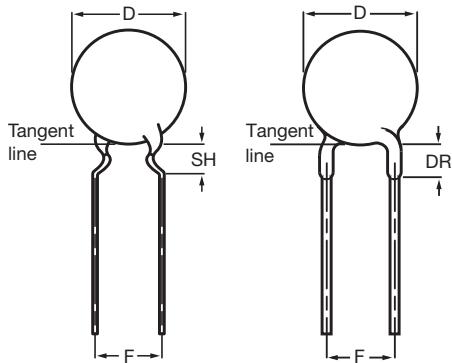


Ceramic Disc Capacitors Class 1 and 2, 50 V_{DC}, General Purpose



Capacitors with 5 mm (0.20") and 2.5 mm (0.10") lead spacing

QUICK REFERENCE DATA		
DESCRIPTION	CLASS 1 (NPO, SL0)	CLASS 2 (Y5P, Z5U, Y5V, Z5V)
Voltage (V _{DC})	50	
Min. Capacitance (pF)	1	150
Max. Capacitance (pF)	100	47 000
Mounting	Through hole	

MARKING

Marking indicates capacitance value and tolerance in accordance with "EIA 198"

OPERATING TEMPERATURE RANGE

Class 1, - 55 °C to + 125 °C

Class 2, - 30 °C to + 85 °C

TEMPERATURE COEFFICIENT Y5R (2C4) - 30 °C TO + 85 °C

Class 1, NPO; SL0

Class 2, Y5P; Z5U; Y5V; Z5V

SECTIONAL SPECIFICATIONS

Class 1, IEC 60 384-8,

Class 2, IEC 60 384-9,

EIA 198

CLIMATIC CATEGORY

Class 1, - 55 °C to + 125 °C

Class 2, - 30 °C to + 85 °C

Note

- The capacitors meet the essential requirements of "IEC 60384-9 and EIA 198". Unless stated otherwise all electrical values apply at an ambient temperature of 25 °C ± 3 °C, at normal atmospheric conditions

FEATURES

- Low losses
- High stability
- High capacitance in small size
- Kinked (preferred) or straight leads
- Compliant to RoHS directive 2002/95/EC



RoHS
COMPLIANT

APPLICATIONS

- Bypassing
- Coupling
- Resonant circuit

DESIGN

The capacitors consist of a ceramic disc both sides of which are silver-plated. Connection leads are made of tinned copper having a diameter of 0.6 mm.

The capacitors have inward kinked leads with a spacing of 5 mm (0.20") and straight leads with 2.5 mm (0.10"), lead length from 4 mm to 30 mm.

Encapsulation is made of phenolic resin.

CAPACITANCE RANGE

Class 1, at 1 MHz, 1.2 V_{RMS}; 1.0 pF to 100 pF
1 kHz, 1 V_{RMS} ± 0.2 V_{RMS} for capacitance values higher than 1000 pF

Class 2, at 1 kHz, 1 V_{RMS} ± 0.2 V_{RMS} 150 pF to 47 000 pF

RATED DC VOLTAGE

50 V

DIELECTRIC STRENGTH

250 % of rated voltage

INSULATION RESISTANCE AT 500 V_{DC}

≥ 10 000 MΩ

TOLERANCE ON CAPACITANCE

± 5 %; ± 10 %; ± 20 %; + 80 %/ - 20 %

DISSIPATION FACTOR

Class 1, C ≤ 30 pF ≤ 20 x (10/C + 0.7) x 10⁻⁴ maximum

Class 1, C > 30 pF ≤ 0.2 %

Class 2, ≤ 3.0 %

ORDERING INFORMATION, CLASS 1, 50 V_{DC}, KINKED					
C (pF)	TOL. (%)	D _{MAX} . (mm)	SH/DR _{MAX} . ⁽¹⁾ (mm)	CLEAR TEXT CODE	
				13 TH DIGIT: T = REEL; U = AMMO; 3 = BULK	
CLASS 1 NP0					
1.0	± 0.25 pF	5.0	5.0	4.0	D109C20C0KF6.J5R
			2.5	1.5	D109C20C0KF6.L2R
			5.0	4.0	D159C20C0KF6.J5R
			2.5	1.5	D159C20C0KF6.L2R
			5.0	4.0	D229C20C0JF6.J5R
			2.5	1.5	D229C20C0JF6.L2R
			5.0	4.0	D339C20C0JF6.J5R
			2.5	1.5	D339C20C0JF6.L2R
			5.0	4.0	D479C20C0HF6.J5R
			2.5	1.5	D479C20C0HF6.L2R
6.8	± 0.5 pF	5.0	5.0	4.0	D689D20C0HF6.J5R
			2.5	1.5	D689D20C0HF6.L2R
			5.0	4.0	D100J20C0GF6.J5R
			2.5	1.5	D100J20C0GF6.L2R
			5.0	4.0	D120J20C0GF6.J5R
			2.5	1.5	D120J20C0GF6.L2R
			5.0	4.0	D150J20C0GF6.J5R
			2.5	1.5	D150J20C0GF6.L2R
			5.0	4.0	D180J20C0GF6.J5R
			2.5	1.5	D180J20C0GF6.L2R
10	± 5.0	5.0	5.0	4.0	D220J20C0GF6.J5R
			2.5	1.5	D220J20C0GF6.L2R
			5.0	4.0	D270J20C0GF6.J5R
			2.5	1.5	D270J20C0GF6.L2R
			5.0	4.0	D330J20C0GF6.J5R
			2.5	1.5	D330J20C0GF6.L2R
			5.0	4.0	D390J20C0GF6.J5R
			2.5	1.5	D390J20C0GF6.L2R
			5.0	4.0	D470J20C0GF6.J5R
			2.5	1.5	D470J20C0GF6.L2R
CLASS 1 SL0					
56	± 5.0	5.0	5.0	4.0	D560J20SL0F6.J5R
			2.5	1.5	D560J20SL0F6.L2R
			5.0	4.0	D680J20SL0F6.J5R
			2.5	1.5	D680J20SL0F6.L2R
			5.0	4.0	D820J20SL0F6.J5R
			2.5	1.5	D820J20SL0F6.L2R
			5.0	4.0	D101J20SL0F6.J5R
			2.5	1.5	D101J20SL0F6.L2R

Notes

(1) SH = seated height; DR = run down

- Maximum thickness 4.0 mm
- Lead style codes refer to lead configurations

ORDERING INFORMATION, CLASS 2, 50 V_{DC}, KINKED

C (pF)	TOL. (%)	D _{MAX.} (mm)	SH/DR _{MAX.} (¹) (mm)	CLEAR TEXT CODE	
				13 TH DIGIT: T = REEL; U = AMMO; 3 = BULK	
CLASS 2 Y5P					
150	± 10	5	5.0	4.0	D151K20Y5PF6.J5R
			2.5	1.5	D151K20Y5PF6.L2R
			5.0	4.0	D181K20Y5PF6.J5R
			2.5	1.5	D181K20Y5PF6.L2R
			5.0	4.0	D221K20Y5PF6.J5R
			2.5	1.5	D221K20Y5PF6.L2R
			5.0	4.0	D331K20Y5PF6.J5R
			2.5	1.5	D331K20Y5PF6.L2R
			5.0	4.0	D471K20Y5PF6.J5R
			2.5	1.5	D471K20Y5PF6.L2R
			5.0	4.0	D681K20Y5PF6.J5R
			2.5	1.5	D681K20Y5PF6.L2R
			5.0	4.0	D102K20Y5PF6.J5R
			2.5	1.5	D102K20Y5PF6.L2R
			5.0	4.0	D152K20Y5PF6.J5R
			2.5	1.5	D152K20Y5PF6.L2R
1800	6.5	5.0	5.0	4.0	D182K25Y5PF6.J5R
			2.5	1.5	D182K25Y5PF6.L2R
			5.0	4.0	D222K25Y5PF6.J5R
			2.5	1.5	D222K25Y5PF6.L2R
			5.0	4.0	D332K25Y5PF6.J5R
			2.5	1.5	D332K25Y5PF6.L2R
			5.0	4.0	D472K29Y5PF6.J5R
			2.5	1.5	D472K29Y5PF6.L2R
			5.0	4.0	D682K33Y5PF6.J5R
			2.5	1.5	D682K33Y5PF6.L2R
			5.0	4.0	D103K39Y5PF6.J5R
			2.5	1.5	D103K39Y5PF6.L2R
			5.0	4.0	D103K39Y5PF6.J5R
			2.5	1.5	D103K39Y5PF6.L2R
			5.0	4.0	D103K39Y5PF6.J5R
			2.5	1.5	D103K39Y5PF6.L2R
2200	7.5	6.5	5.0	4.0	D102M20Z5UF6.J5R
			2.5	1.5	D102M20Z5UF6.L2R
			5.0	4.0	D152M20Z5UF6.J5R
			2.5	1.5	D152M20Z5UF6.L2R
			5.0	4.0	D222M20Z5UF6.J5R
			2.5	1.5	D222M20Z5UF6.L2R
			5.0	4.0	D332M20Z5UF6.J5R
			2.5	1.5	D332M20Z5UF6.L2R
			5.0	4.0	D472M20Z5UF6.J5R
			2.5	1.5	D472M20Z5UF6.L2R
			5.0	4.0	D682M25Z5UF6.J5R
			2.5	1.5	D682M25Z5UF6.L2R
			5.0	4.0	D682M25Z5UF6.J5R
			2.5	1.5	D682M25Z5UF6.L2R
			5.0	4.0	D682M25Z5UF6.J5R
			2.5	1.5	D682M25Z5UF6.L2R
3300	8.5	6.5	5.0	4.0	D103K39Y5PF6.J5R
			2.5	1.5	D103K39Y5PF6.L2R
			5.0	4.0	D152K20Y5PF6.J5R
			2.5	1.5	D152K20Y5PF6.L2R
			5.0	4.0	D222K25Y5PF6.J5R
			2.5	1.5	D222K25Y5PF6.L2R
			5.0	4.0	D332K25Y5PF6.J5R
			2.5	1.5	D332K25Y5PF6.L2R
			5.0	4.0	D472K29Y5PF6.J5R
			2.5	1.5	D472K29Y5PF6.L2R
			5.0	4.0	D682K33Y5PF6.J5R
			2.5	1.5	D682K33Y5PF6.L2R
			5.0	4.0	D103K39Y5PF6.J5R
			2.5	1.5	D103K39Y5PF6.L2R
			5.0	4.0	D103K39Y5PF6.J5R
			2.5	1.5	D103K39Y5PF6.L2R
4700	10	6.5	5.0	4.0	D103K39Y5PF6.J5R
			2.5	1.5	D103K39Y5PF6.L2R
			5.0	4.0	D152K20Y5PF6.J5R
			2.5	1.5	D152K20Y5PF6.L2R
			5.0	4.0	D222K25Y5PF6.J5R
			2.5	1.5	D222K25Y5PF6.L2R
			5.0	4.0	D332K25Y5PF6.J5R
			2.5	1.5	D332K25Y5PF6.L2R
			5.0	4.0	D472K29Y5PF6.J5R
			2.5	1.5	D472K29Y5PF6.L2R
			5.0	4.0	D682K33Y5PF6.J5R
			2.5	1.5	D682K33Y5PF6.L2R
			5.0	4.0	D103K39Y5PF6.J5R
			2.5	1.5	D103K39Y5PF6.L2R
			5.0	4.0	D103K39Y5PF6.J5R
			2.5	1.5	D103K39Y5PF6.L2R

Notes

(¹) SH = seated height; DR = run down

- Maximum thickness 4.0 mm
- Lead style codes refer to lead configurations

ORDERING INFORMATION, CLASS 2, 50 V_{DC}, KINKED AND STRAIGHT

C (pF)	TOL. (%)	D _{MAX.} (mm)	SH/DR _{MAX.} (¹) (mm)	CLEAR TEXT CODE	
				13 TH DIGIT: T = REEL; U = AMMO; 3 = BULK	
CLASS 2 Z5U					
1000	± 20	5	5.0	4.0	D102M20Z5UF6.J5R
			2.5	1.5	D102M20Z5UF6.L2R
			5.0	4.0	D152M20Z5UF6.J5R
			2.5	1.5	D152M20Z5UF6.L2R
			5.0	4.0	D222M20Z5UF6.J5R
			2.5	1.5	D222M20Z5UF6.L2R
			5.0	4.0	D332M20Z5UF6.J5R
			2.5	1.5	D332M20Z5UF6.L2R
			5.0	4.0	D472M20Z5UF6.J5R
			2.5	1.5	D472M20Z5UF6.L2R
			5.0	4.0	D682M25Z5UF6.J5R
			2.5	1.5	D682M25Z5UF6.L2R
			5.0	4.0	D682M25Z5UF6.J5R
			2.5	1.5	D682M25Z5UF6.L2R
			5.0	4.0	D682M25Z5UF6.J5R
			2.5	1.5	D682M25Z5UF6.L2R
1500	± 20	6.5	5.0	4.0	D103K39Y5PF6.J5R
			2.5	1.5	D103K39Y5PF6.L2R
			5.0	4.0	D152K20Y5PF6.J5R
			2.5	1.5	D152K20Y5PF6.L2R
			5.0	4.0	D222K25Y5PF6.J5R
			2.5	1.5	D222K25Y5PF6.L2R
			5.0	4.0	D332K25Y5PF6.J5R
			2.5	1.5	D332K25Y5PF6.L2R
			5.0	4.0	D472K29Y5PF6.J5R
			2.5	1.5	D472K29Y5PF6.L2R
			5.0	4.0	D682K33Y5PF6.J5R
			2.5	1.5	D682K33Y5PF6.L2R
			5.0	4.0	D103K39Y5PF6.J5R
			2.5	1.5	D103K39Y5PF6.L2R
			5.0	4.0	D103K39Y5PF6.J5R
			2.5	1.5	D103K39Y5PF6.L2R
2200	± 20	6.5	5.0	4.0	D103K39Y5PF6.J5R
			2.5	1.5	D103K39Y5PF6.L2R
			5.0	4.0	D152M20Z5UF6.J5R
			2.5	1.5	D152M20Z5UF6.L2R
			5.0	4.0	D222M20Z5UF6.J5R
			2.5	1.5	D222M20Z5UF6.L2R
			5.0	4.0	D332M20Z5UF6.J5R
			2.5	1.5	D332M20Z5UF6.L2R
			5.0	4.0	D472M20Z5UF6.J5R
			2.5	1.5	D472M20Z5UF6.L2R
			5.0	4.0	D682M25Z5UF6.J5R
			2.5	1.5	D682M25Z5UF6.L2R
			5.0	4.0	D682M25Z5UF6.J5R
			2.5	1.5	D682M25Z5UF6.L2R
			5.0	4.0	D682M25Z5UF6.J5R
			2.5	1.5	D682M25Z5UF6.L2R
3300	± 20	6.5	5.0	4.0	D103K39Y5PF6.J5R
			2.5	1.5	D103K39Y5PF6.L2R
			5.0	4.0	D152M20Z5UF6.J5R
			2.5	1.5	D152M20Z5UF6.L2R
			5.0	4.0	D222M20Z5UF6.J5R
			2.5	1.5	D222M20Z5UF6.L2R
			5.0	4.0	D332M20Z5UF6.J5R
			2.5	1.5	D332M20Z5UF6.L2R
			5.0	4.0	D472M20Z5UF6.J5R
			2.5	1.5	D472M20Z5UF6.L2R
			5.0	4.0	D682M25Z5UF6.J5R
			2.5	1.5	D682M25Z5UF6.L2R
			5.0	4.0	D682M25Z5UF6.J5R
			2.5	1.5	D682M25Z5UF6.L2R
			5.0	4.0	D682M25Z5UF6.J5R
			2.5	1.5	D682M25Z5UF6.L2R
4700	± 20	6.5	5.0	4.0	D103K39Y5PF6.J5R
			2.5	1	

ORDERING INFORMATION, CLASS 2, 50 V_{DC}, KINKED AND STRAIGHT								
C (pF)	TOL. (%)	D _{MAX} . (mm)	SH/DR _{MAX} . ⁽¹⁾ (mm)	CLEAR TEXT CODE				
				13 TH DIGIT: T = REEL; U = AMMO; 3 = BULK				
CLASS 2 Z5U								
10 000	± 20	7.5	5.0	4.0	D103M29Z5UF6.J5R			
			2.5	1.5	D103M29Z5UF6.L2R			
15 000		8.5	5.0	4.0	D153M33Z5UF6.J5R			
			2.5	1.5	D153M33Z5UF6.L2R			
22 000		10	5.0	4.0	D223M39Z5UF6.J5R			
			2.5	1.5	D223M39Z5UF6.L2R			
CLASS 2 Y5V								
1000	+ 80/-20	5	5.0	4.0	D102Z20Y5VF6.J5R			
			2.5	1.5	D102Z20Y5VF6.L2R			
			5.0	4.0	D152Z20Y5VF6.J5R			
			2.5	1.5	D152Z20Y5VF6.L2R			
			5.0	4.0	D222Z20Y5VF6.J5R			
		6.5	2.5	1.5	D222Z20Y5VF6.L2R			
			5.0	4.0	D332Z20Y5VF6.J5R			
			2.5	1.5	D332Z20Y5VF6.L2R			
			5.0	4.0	D472Z20Y5VF6.J5R			
			2.5	1.5	D472Z20Y5VF6.L2R			
1500	+ 80/-20	7.5	5.0	4.0	D682Z25Y5VF6.J5R			
			2.5	1.5	D682Z25Y5VF6.L2R			
		8.5	5.0	4.0	D103Z29Y5VF6.J5R			
			2.5	1.5	D103Z29Y5VF6.L2R			
		10	5.0	4.0	D153Z33Y5VF6.J5R			
			2.5	1.5	D153Z33Y5VF6.L2R			
CLASS 2 Z5V								
22 000	+ 80/-20	5	5.0	4.0	D472Z20Z5VF6.J5R			
			2.5	1.5	D472Z20Z5VF6.L2R			
		6.5	5.0	4.0	D103Z25Z5VF6.J5R			
			2.5	1.5	D103Z25Z5VF6.L2R			
		7.5	5.0	4.0	D223Z29Z5VF6.J5R			
			2.5	1.5	D223Z29Z5VF6.L2R			
		10	5.0	4.0	D473Z39Z5VF6.J5R			
			2.5	1.5	D473Z39Z5VF6.L2R			

Notes

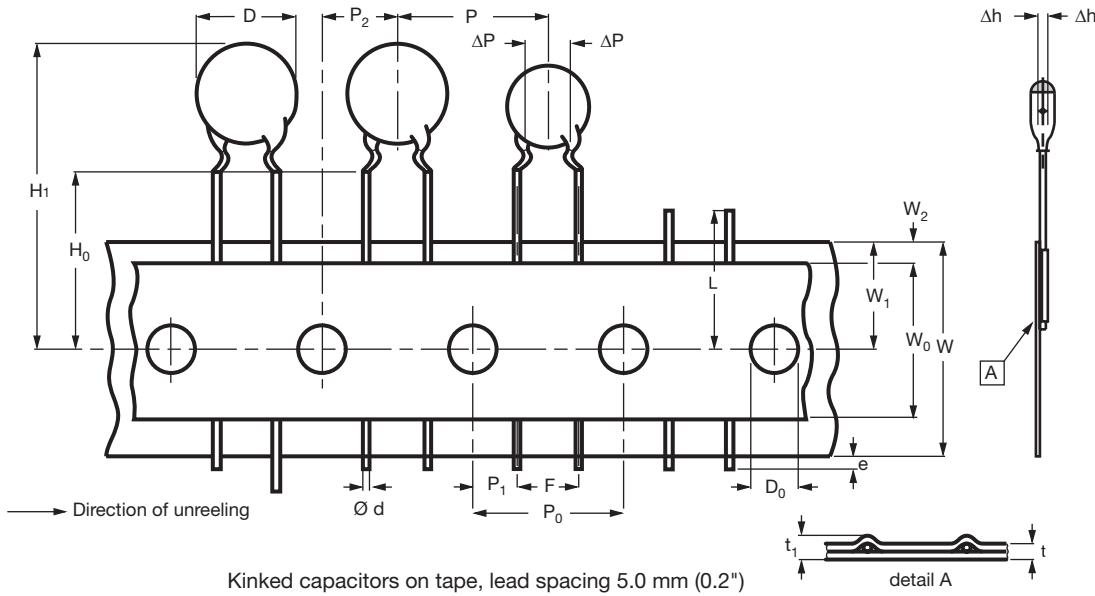
(¹) SH = seated height; DR = run down

- Maximum thickness 4.0 mm
- Lead style codes refer to lead configurations

PACKAGING						
D _{MAX} .	SIZE CODE	PACKAGING QUANTITIES				
		BULK	REEL	AMMO		
5.0 (0.20")	20					
6.5 (0.25")	25					
7.5 (0.29")	29					
8.5 (0.33")	33					
10.0 (0.39")	39					
11.0 (0.43")	43					
		1000	2500	2000		

Note

- The capacitors are supplied in bulk packaging (cardboard boxes), in tape on reel or in ammopack



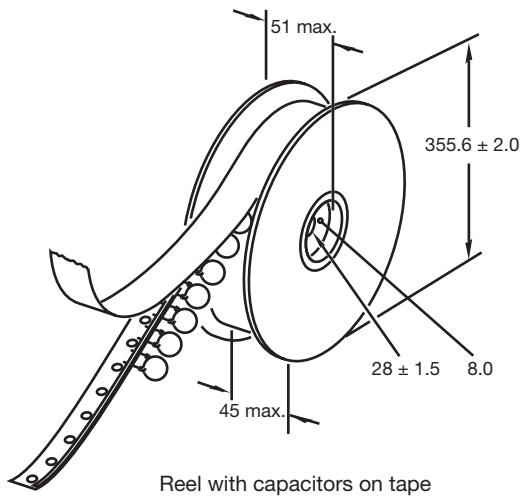
DIMENSIONS OF TAPE

SYMBOL	PARAMETER	DIMENSIONS (mm)	
		FEED-HOLE PITCH $P_0 = 12.7$	FEED-HOLE PITCH $P_0 = 15.0$
D	Body diameter	11.0 maximum	-
d	Lead diameter	0.6	± 0.05
P	Pitch between capacitors	12.7	± 1.0
P_0 ⁽¹⁾	Feed-hole pitch	12.7	± 0.3
ΔP	Plane deviation	1.0 maximum	-
P_1 ⁽²⁾	Feed-hole center to lead center	3.85	± 0.7
P_2 ⁽²⁾	Feed-hole center to component center	6.35	± 1.3
F	Lead spacing	5.0	0.6/- 0.4
Δh	Component alignment	0	± 1.0
W	Tape width	18.0	$+ 1.0/- 0.5$
W_0	Hold-down tape width	5.0 minimum	-
W_1	Hole position	9.0	$+ 0.75/- 0.5$
W_2	Hold-down tape margin	3.0 maximum	-
H_0	Height to seating plane	16.0	± 0.5
H_1	Maximum component height	32.0	-
e	Lead end protrusion	1.0 maximum	-
L	Maximum length of snipped lead	11.0	-
D_0	Feed-hole diameter	4.0	± 0.2
t	Total tape thickness	0.9 maximum	-
t_1	Maximum thickness of tape and wires	1.5 maximum	-

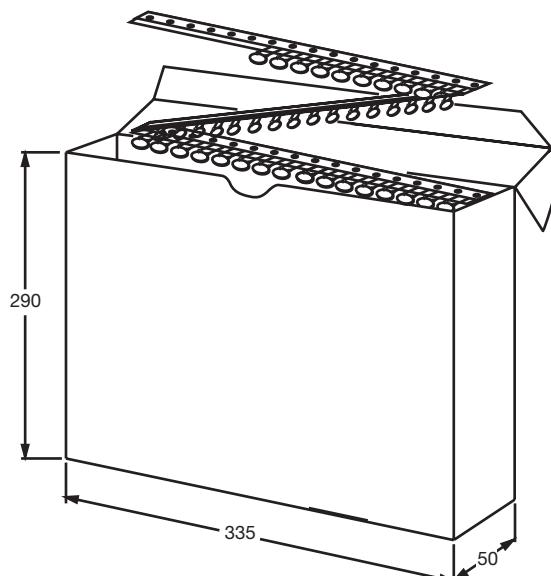
Notes

(1) Cumulative pitch error: $\pm \leq 1$ mm/20 pitches

(2) Obliquity maximum 3°

REEL AND TAPE DATA in millimeters

Reel with capacitors on tape



Ammopack with capacitors on tape

Disclaimer

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Material Category Policy

Vishay Intertechnology, Inc. hereby certifies that all its products that are identified as RoHS-Compliant fulfill the definitions and restrictions defined under Directive 2011/65/EU of The European Parliament and of the Council of June 8, 2011 on the restriction of the use of certain hazardous substances in electrical and electronic equipment (EEE) - recast, unless otherwise specified as non-compliant.

Please note that some Vishay documentation may still make reference to RoHS Directive 2002/95/EC. We confirm that all the products identified as being compliant to Directive 2002/95/EC conform to Directive 2011/65/EU.

Vishay Intertechnology, Inc. hereby certifies that all its products that are identified as Halogen-Free follow Halogen-Free requirements as per JEDEC JS709A standards. Please note that some Vishay documentation may still make reference to the IEC 61249-2-21 definition. We confirm that all the products identified as being compliant to IEC 61249-2-21 conform to JEDEC JS709A standards.