Resistors

Defibrillator Pulse Chip Resistors

DPCR Series

- Withstands medical defibrillator surges
- Withstands ESD to 15kV
- Compact 2512 footprint
- Anti-Sulphur terminations

All parts are Pb-free and comply with EU Directive 2011/65/EU amended by (EU) 2015/863 (RoHS3)

Electrical Data

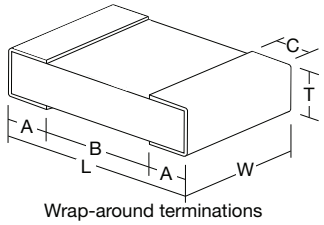
		2512
Power @70°C	W	1.5
Resistance values	ohms	20K to 100K
Tolerance	%	5
LEV	V	500
TCR	ppm/°C	±100
Operating temperature	°C	-55 to +155
Dielectric withstand voltage	V	500
Thermal Impedance	°C/W	50
Pad & trace area for rated power*	mm^2	100
Values		20K & 51K standard- other E24 values available

*Recommended minimum pad & adjacent trace area for each termination for rated power dissipation on FR4 PCB

Physical Data

Dimensions (mm) & Weight (mg)

	L	W	T max	A	B min	C	Wt.
2512	6.5±0.3	3.2±0.2	0.8	0.6±0.3	4.4	0.6±0.25	65



Wrap-around terminations
(3 faces)

Construction

Thick film resistor material, overglaze and organic protection are screen printed on a 96% alumina substrate. Wrap-around terminations have an electro-plated nickel barrier and solderable coating; this ensures excellent 'leach' resistance properties and solderability

Marking

Components are not marked. Reels are marked with type, value, tolerance, date code and quantity.

Solvent Resistance

The body protection is resistant to all normal industrial cleaning solvents suitable for printed circuits.

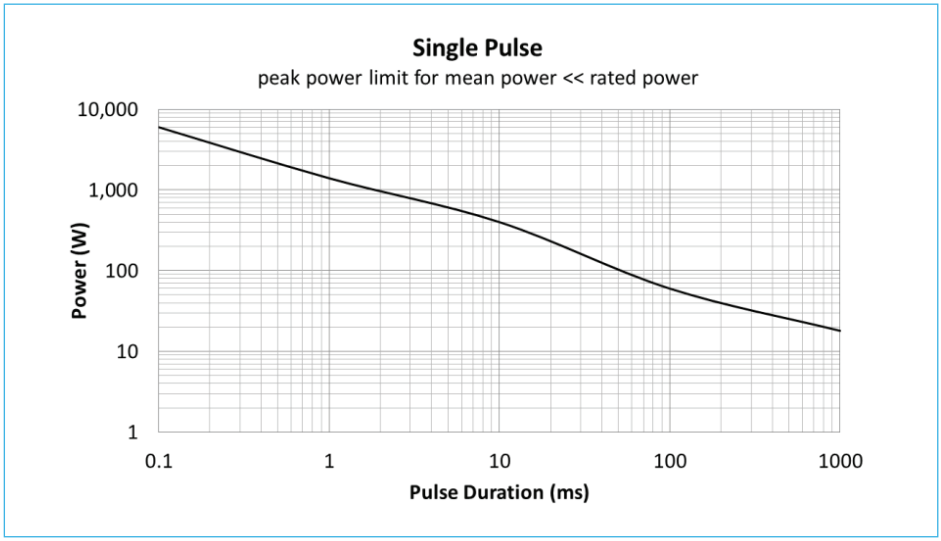
Performance Data

		Maximum	Typical
Load at rated power: 1000 hours at 70°C	±ΔR%	1	0.25
Overload: 6.25 x rated power for 2 seconds	±ΔR%	1	0.1
Shelf life test: 12 months at room temperature	±ΔR%	0.1	0.02
Dry heat: 1000 hours at 155°C	±ΔR%	1	0.2
Long term damp heat	±ΔR%	1	0.25
Temperature rapid change	±ΔR%	0.25	0.05
Resistance to sulphur-bearing gas ASTM-B-809	±ΔR%	0.25	0.05
Resistance to solder heat	±ΔR%	0.25	0.05
Defibrillation pulse: 100 pulses, 5kV peak	±ΔR%	1	see graphs
ESD: 100 pulses, 8kV peak, contact	±ΔR%	1	see graphs
ESD: 100 pulses, 15kV peak, air	±ΔR%	1	see graphs

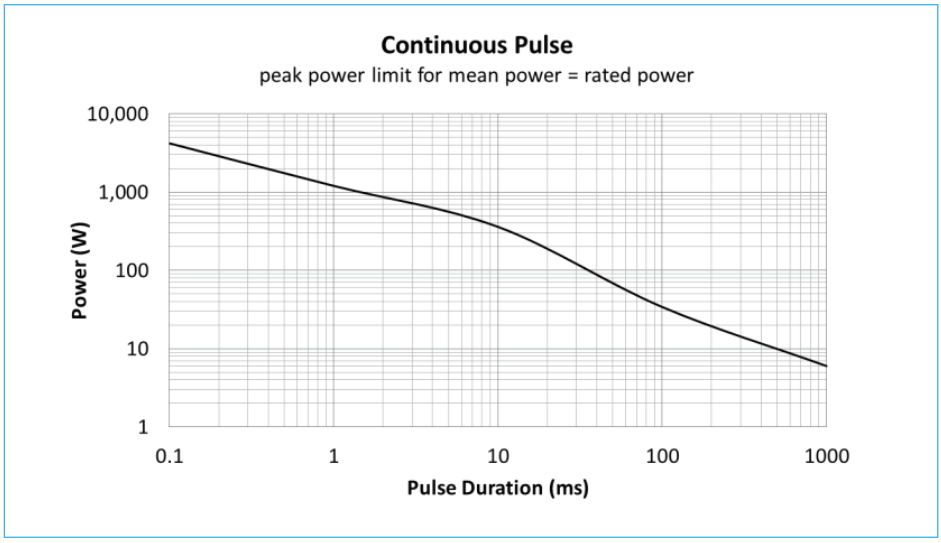
Pulse Performance Data

Rectangular Pulse Power Limits

The single pulse graph is the result of 50 pulses of rectangular shape applied at one-minute intervals. The limit of acceptance is a shift in resistance of within ±1%.

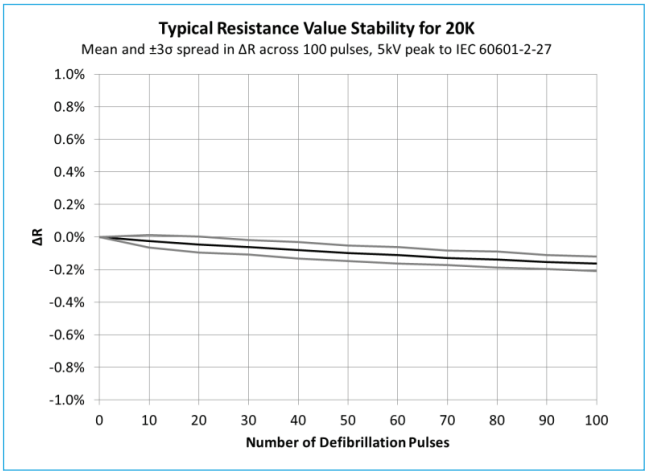


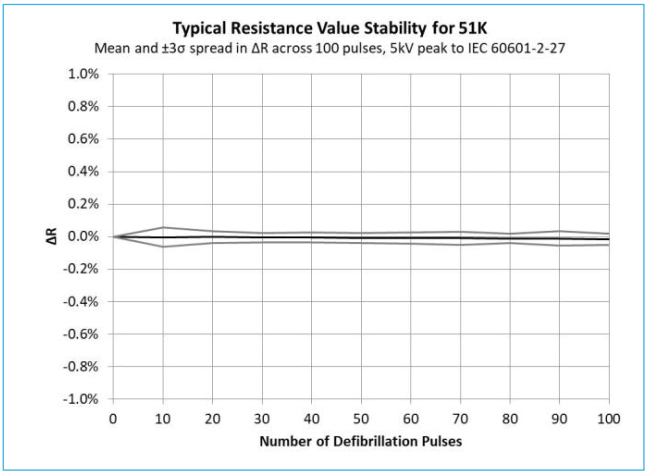
The continuous pulse graph is obtained by applying repetitive rectangular pulses where the pulse period is adjusted so that the average power dissipated in the resistor is equal to its rated power at 70°C. The limit of acceptance is a shift in resistance of within ±1%.



Defibrillator Pulse Value Stability

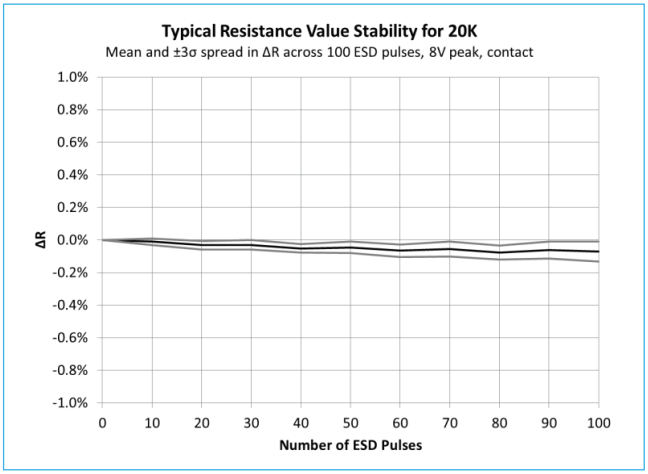
The typical stability of ohmic value after exposure to up to 100 defibrillation pulses applied at 12s intervals.

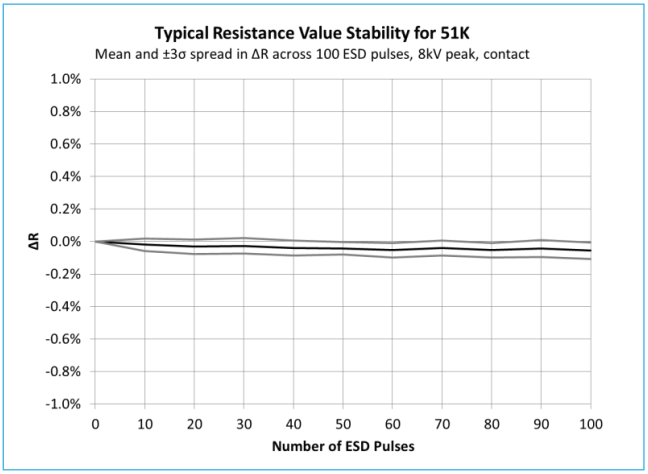


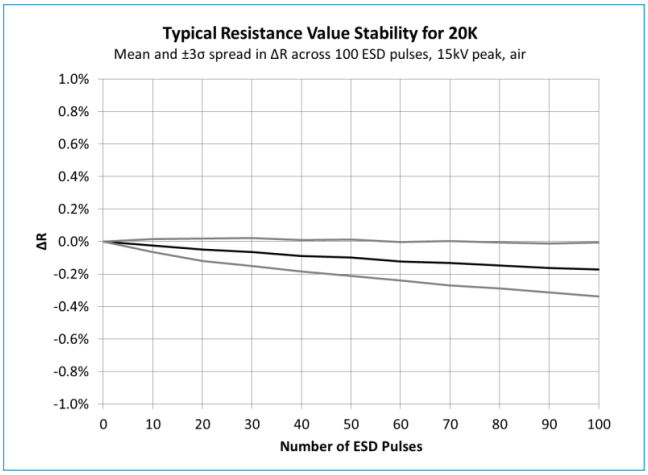


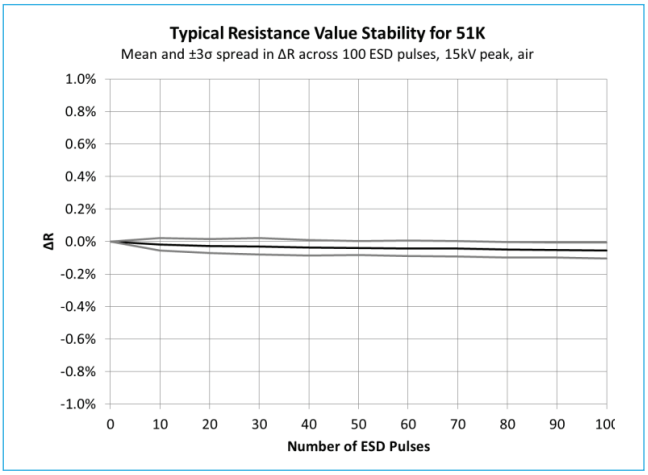
ESD Pulse Value Stability

The typical stability of ohmic value after exposure to up to 100 ESD pulses to IEC 61000-4-2, Level 4 applied at 30s intervals.

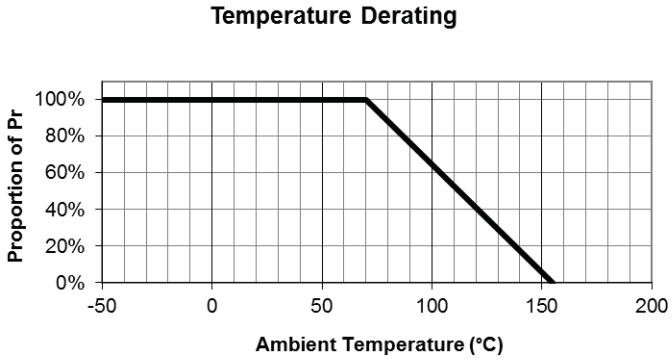








Thermal Performance Data



Packaging

DPCR2512 resistors are supplied on 12 mm plastic carrier tape on 7 inch reels as per IEC 286-3.

Application Notes

DPCR resistors are ideally suited for handling by automatic methods due to their rectangular shape and the small dimensional tolerances. Electrical connection to a ceramic substrate or to a printed circuit board can be made by reflow or wave soldering of wrap-around terminations.

Wrap-around terminations provide good leach properties and ensure reliable contact. Due to the robust construction, the DPCR can be immersed in the solder bath for 30 seconds at 260°C. This enables the resistor to be mounted on one side of a printed circuit board and wire-leaded components applied on the other side. DPCR is compatible with typical Pb-free soldering materials and temperature profiles.

DPCR resistors themselves can operate at a maximum temperature of 155°C. For soldered resistors, the joint temperature should not exceed 110°C. This condition is met when the stated power levels at 70°C and recommended pad and trace areas are used. Pad and trace area is defined as the total area of the solder pad plus all copper trace within two squares of the edge of the solder pad. Allowance should be made if smaller areas of copper are used.

Ordering Procedure

Example: DPCR2512-20KJT18 (DPCR2512, 20 kilohms ±5%, Pb-free)

D	P	C	R	2	5	1	2	-	2	0	K	J	T	1	8
1				2					3			4	5		

1 Type	2 Size	3	4 Tolerance	5 Termination & Packing	
DPCR	2512	E24 = 3/4 characters K = kilohms	J = ±5%	Standard Pb-free finish	
				T18	1800/reel standard
				T1	1000/reel available

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