



Metal Film Resistors, Axial, Military/Established Reliability, MIL-PRF-39017 Qualified, Type RLR



FEATURES

- Meets requirements of MIL-PRF-39017
Failure rate: Verified failure rate (contact factory for current level)
Epoxy coated construction provides superior moisture protection
Traceability of materials and processing
Monthly lot acceptance testing
Very low noise (-40 dB)
Extensive stocking program at distributors and factory in +/- 1% and +/- 2% tolerances
Vishay Dale has complete capability to develop specific reliability programs designed to customer requirements

Table with 9 columns: VISHAY DALE MODEL, MIL-PRF-39017 STYLE, MIL SPEC. SHEET, POWER RATING 70 °C W, RESISTANCE RANGE (1) Ω, TOLERANCE ± %, TEMPERATURE COEFFICIENT ± ppm/°C, MAXIMUM WORKING VOLTAGE (4) V, LIFE FAILURE RATE (2). Rows include ERL05, ERL07, ERL20, ERL32 models.

Notes

(1) Extended Resistance Range: DSCC has created a series of drawings intended to support extended resistance ranges left otherwise void by the discontinuation of MIL-R-39008 RCR carbon composition resistors. Vishay Dale is listed as a resource on these drawings as follows:

Table with 7 columns: DSCC DRAWING NUMBER, VISHAY DALE MODEL, POWER RATING P70 °C W, RESISTANCE RANGE Ω, TOLERANCE ± %, TEMPERATURE COEFFICIENT ± ppm/°C, MAXIMUM WORKING VOLTAGE V (4). Rows include drawings 98020, 99011, 98021, 98022, 97004.

• Low inductance: DSCC has created a drawing intended to support a resistor which exhibits low inductance over a frequency range of 1 MHz to 30 MHz. Vishay Dale is listed as a resource on these drawings as follows:

Table with 8 columns: DSCC DRAWING NUMBER, VISHAY DALE MODEL, POWER RATING P70 °C W, RESISTANCE RANGE Ω, MAXIMUM INDUCTANCE nH, TOLERANCE ± %, TEMPERATURE COEFFICIENT ± ppm/°C, MAXIMUM WORKING VOLTAGE V (4). Row includes drawing 96002.

These drawings can be viewed at: http://www.landandmaritime.dla.mil/Programs/MilSpec/ListDwgs.aspx?DocTYPE=DSCCdwg

(2) Consult factory for current QPL failure rates

(3) Hot solder dipped leads

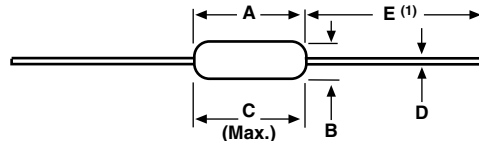
(4) Continuous working voltage shall be sqrt(P x R) or maximum working voltage, whichever is less.

Table with 3 columns: PARAMETER, UNIT, CONDITION. Rows include Voltage Coefficient, Dielectric Strength, Insulations Resistance, Operating Temperature Range, Terminal Strength, Solderability, Weight.

GLOBAL PART NUMBER INFORMATION																	
New Global Part Numbering: RLR07C3001FRR36 (preferred part numbering format)																	
R	L	R	0	7	C	3	0	0	1	F	R	R	3	6			
MIL STYLE	LEAD MATERIAL	RESISTANCE VALUE			TOLERANCE CODE	FAILURE RATE		PACKAGING		SPECIAL							
RLR05 RLR07 RLR20 RLR32	C = solderable/ weldable	3 digit significant figure, followed by a multiplier Use "R" for values < 100 Ω 1R00 = 1 Ω 3302 = 33 kΩ 1005 = 10 MΩ			F = ± 1 % G = ± 2 %	M = 1.0 %/1000 h P = 0.1 %/1000 h R = 0.01 %/1000 h S = 0.001 %/1000 h		B14 = tin/lead, bulk BSL = tin/lead, bulk, single lot date code R36 = tin/lead, T/R (full, except 32's) R64 = tin/lead, T/R (full; 32's only) RE6 = tin/lead, T/R (1000 pieces) RSL = tin/lead, T/R, single lot date code		Blank = standard (Dash number) (Up to 3 digits) From 1 to 999 as applicable 1 = hot solder dip (32's) 11 = hot solder dip (20's) 19 = hot solder dip (05's) 23 = hot solder dip (07's)							
Historical Part Number Example: RLR07C3001FR (will continue to be accepted)																	
RLR07	C	3001			F	R		R36									
MIL STYLE	LEAD MATERIAL	RESISTANCE VALUE			TOLERANCE CODE	FAILURE RATE		PACKAGING									

**Note**

- For additional information on packaging, refer to the Through Hole Resistor Packaging document ([www.vishay.com/doc?31544](http://www.vishay.com/doc?31544)).

**DIMENSIONS** in inches (millimeters)

**Note**

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

VISHAY DALE MODEL	A	B	C (Max.)	D	E
ERL05	0.150 ± 0.020 (3.81 ± 0.51)	0.066 ± 0.008 (1.68 ± 0.21)	0.187 (4.75)	0.016 ± 0.002 (0.41 ± 0.05)	1.25 ± 0.266 (31.75 ± 6.76)
ERL07	0.250 + 0.031 - 0.046 (6.35 + 0.79 - 1.17)	0.090 ± 0.008 (2.29 ± 0.21)	0.300 (7.62)	0.025 ± 0.002 (0.64 ± 0.05)	1.50 ± 0.125 (38.10 ± 3.18)
ERL20	0.375 ± 0.041 (9.53 ± 1.04)	0.138 ± 0.023 (3.51 ± 0.58)	0.450 (11.43)	0.032 ± 0.002 (0.81 ± 0.05)	1.50 ± 0.125 (38.10 ± 3.18)
ERL32	0.562 ± 0.031 (14.27 ± 0.79)	0.190 ± 0.015 (4.83 ± 0.38)	0.625 (15.87)	0.032 + 0.002 - 0.001 (0.81 + 0.05 - 0.03)	1.50 ± 0.125 (38.10 ± 3.18)
ERL62	0.562 + 0.031 - 0.042 (14.27 + 0.79 - 1.07)	0.230 ± 0.015 (5.84 ± 0.38)	0.650 (16.51)	0.032 + 0.002 - 0.001 (0.81 + 0.05 - 0.03)	1.50 ± 0.125 (38.10 ± 3.18)

MATERIAL SPECIFICATIONS	
Element	Vacuum-deposited nickel-chrome alloy
Core	Fire-cleaned high purity ceramic
Encapsulation	Specially formulated epoxy compound
Termination	Standard lead material is solder-coated copper. Solderable and weldable per MIL-STD-1276, Type C.

**APPLICABLE MIL-SPECIFICATIONS**
**MIL-PRF-39017:**

The ERL series meets the electrical, environmental and dimensional requirements of MIL-PRF-39017.

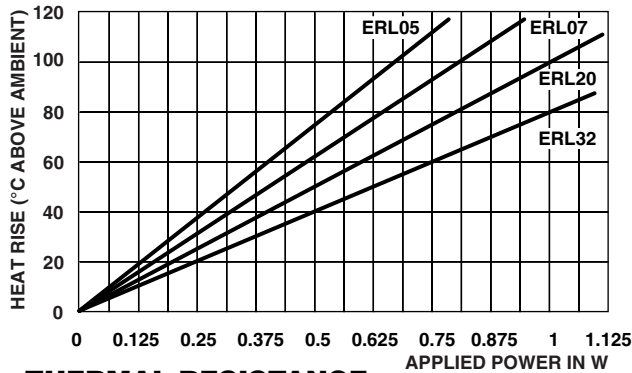
**MIL-PRF-22684:**

MIL-PRF-39017 supercedes MIL-PRF-22684 on new designs. The ERL series meet or exceed MIL-PRF-22684 requirements.

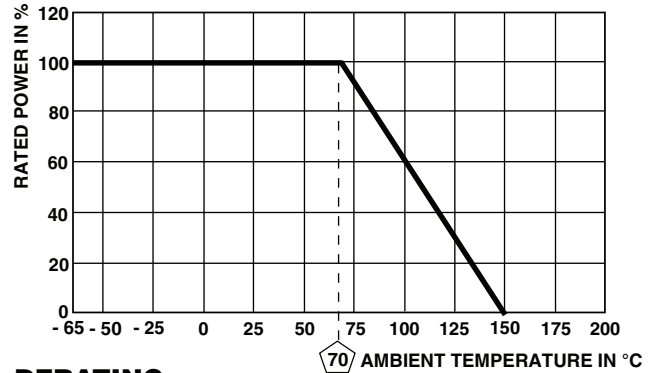
**Documentation:**

Qualification and failure rate verification test data is maintained by Vishay Dale and is available upon request. Lot traceability and identification data is maintained by Vishay Dale for five years.

**CAGE CODE: 91637**



**THERMAL RESISTANCE**



**DERATING**

### MARKING (per MIL-PRF-39017)

Tolerance: F = 1 %, G = 2 %  
 Value = three significant figures and multiplier  
 J = JAN (Joint Army - Navy) brand

#### RLR05: (3 lines)

- 210A 3-digit date code and lot code
- 1002 Value
- FSJD Tolerance, failure rate, JAN and manufacturer's code

#### RLR07: (4 lines)

- 214AJ 3-digit date code, lot code and JAN
- RLR7C Style ("0" omitted) and lead material
- 1300G Value and tolerance
- RD Failure rate and manufacturer's code

#### RLR20, RLR32: (4 lines)

- 91637 CAGE code
- RLR20C Style and lead material
- 4993FR Value, tolerance and failure rate
- 1225AJ 4-digit date code, lot code and JAN



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