Specifications

Products Name	Thick Film Low Ohmic Chip Resistor
Product Series	LRT6432WR***F
Classification	Generic Specification

YOKOHAMA
ELECTRONIC DEVICES
Y. E. D

SMT Metal Thick Film Chip Resistor Specification

Scope

This specification applies to SMT Metal Thick Film Low Ohmic Chip Resistor

Part Number

LRT	6432	W	R***		*
Part Series	**Size** 2512	**Termination** W: With Side Termination	**Resistance**		**Tolerance** F: ±1% G: ±2% J: ±5%
			E24 series	4digits for below 100mΩ R047: 47mΩ	
				3digits for 100m ohm and above R10: 100mΩ, 1R0: 1Ω	
			E96 series	4digits R499: 499mΩ	

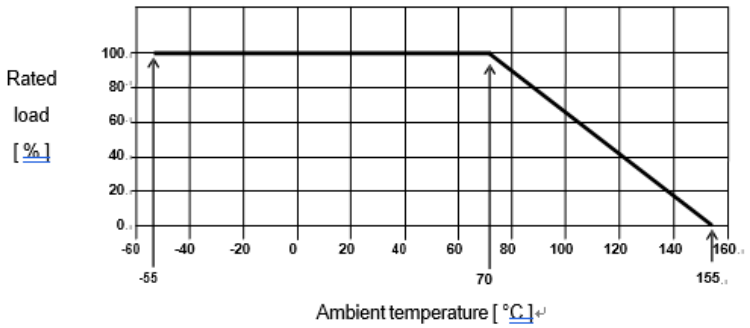
Electrical Specification

Size	Rated power	Range of resistance	Tolerance (Nominal Resistance Series)	TCR
6432	1W	100m～10Ω	F: ±1.0%(E96, E24) G: ±2.0%(E24) J: ±5.0%(E24)	±100ppm/deg. C
		47m～91mΩ	G: ±2.0%(E24) J: ±5.0% (E24)	±350ppm/deg. C

<Ratings>

Parameter	Specification
Rated Ambient temperature	+70 deg. C Refer to Derating curve, Figure-1
Rated Operating Temperature Range	-55~+155 deg. C
Rated Voltage	$\sqrt{\text{Power x Resistance}}$ (V)

Figure-1



Structure/Dimensions/Marking

<Structure>

This part has a structure that metal glazed resistor is formed on ceramic substrate with the termination layers interconnected, and the passivation coated (See figure-2) under construction and composition as shown in the chart in the below (See Figure-3).

Figure-2

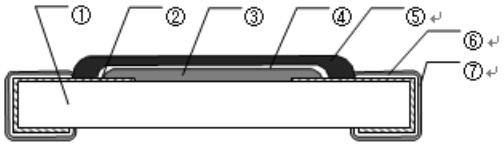


Figure-3

Symbol	Construction	Composition
①	Substrate	Al2O3(96%)
②	Inner Electrode	Ag-Pd Thick Film (Side face: Ag paste thick film)
③	Resistor	Ag-Pd Thick Film
④	Inner Protection coating	Glass passivation
⑤	Outer Protection coating	Epoxy Thick Film
⑥	2nd Side Electrode	Ni plating
⑦	3rd Side Electrode	Sn plating

<Dimension>

Figure-4

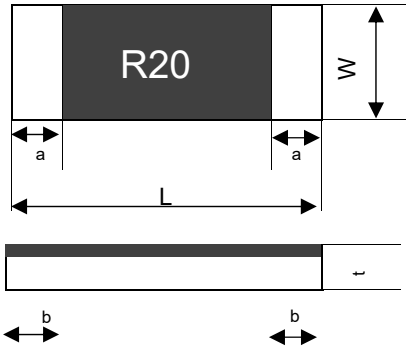


Figure-5

Dimension (mm)				
L	W	a	b	t
6.30±0.20	3.20±0.20	0.70±0.20	0.70±0.20	0.60±0.10

<Marking>

E24 series: below 100m ohm, 4 digits (Ex.) 47m ohm turns to be R047

100m ohm and above, 3 digits (Ex.) 470m ohm turns to be R47

E96 series: 4digits (Ex.)499m ohm turns to be R499

Reliability Characteristics

Figure-6

Item	Condition		Specification
Short Time Overload	Loading power＝2.5 times x the rated voltage Loading time＝5sec.		±2.0%
High Temp. Exposure	Thermostatic Chamber＝155±3 deg. C Retention time＝1000 h $\pm^{48}_{0}$ Hrs.		±1.0%
Low Temp. Exposure	Thermostatic Chamber=-55±3 deg. C Retention time＝1000 h $\pm^{48}_{0}$ hrs.		±1.0%
Temp./Humidity Biased Test	Thermostat Chamber＝40℃±2 deg. C 90～95％RH Loading voltage＝Rated voltage A cycle＝90min. on～30mi. off Retention time cycled＝1000 h $\pm^{48}_{0}$ hrs.		±3.0%
Thermal Cycle	A series of dwell time at each stage in the below cycles; Stage 1＝-55℃±3 deg. C for 30min. Stage 2＝RT within 3 min. Stage 3＝+155±3 deg. C for 30min. Stage4＝RT within 3 min.	100 cycles	±1.0%
Load Life	Thermostat Chamber＝70±3 deg. C Loading voltage＝Rated voltage Retention time＝90min. on～30min.off 1000 h $\pm^{48}_{0}$ hrs.		±3.0%
Solderability	Solder Temp.＝245±5 deg. C Soaking time＝3±0.5sec. Pre-conditioning＝immersing in flux for 1～2sec. Flux＝IPA solution with 25% weight ratio of rosin solvent		New soldered coverage takes up 95% of terminations
Soldering Heat Resistance	Solder Temp.＝260±5 deg. C（Molten solder） Soaking time＝10±1sec.		No solder leach observed
Board Flex	A distance between two supporting points： 90mm Flex depth： 1mm Board：Glass Epoxy t =1.6mm Retention time＝10±1sec.		±1.0%
Insulation	Applied voltage：DC100V±15V under the setup shown in the below for 1min and measure resistance. (from termination to substrate)		1,000MΩ or over

Dielectric withstanding	With 400V to be applied under the setup shown in the below for 60±5s.	No damage by flash-over, burnout and dielectric breakdown. leak current: ≦2mA,

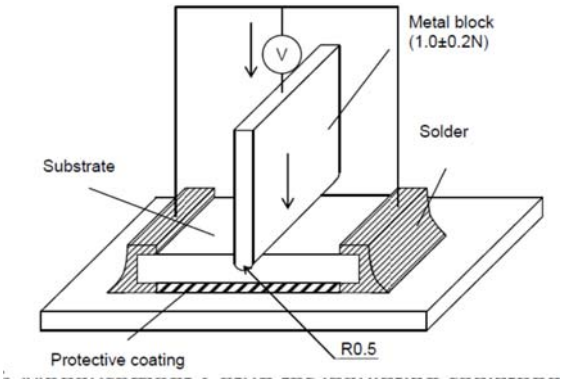


Figure-7 Measurement Setup for insulation resistance/dielectric withstanding voltage

Packaging

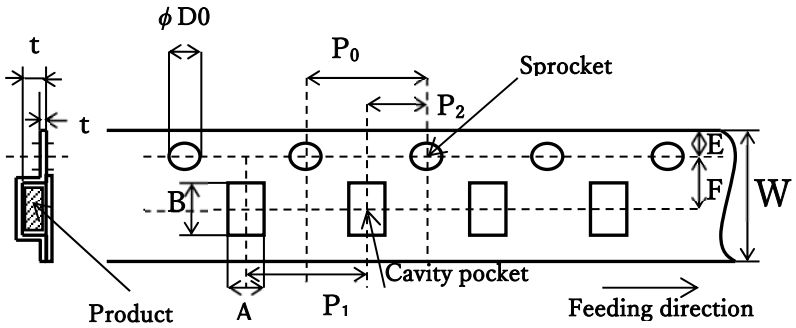


Figure-8 Embossed Plastic Taping

Denote	Dimension
W	12.00±0.20
P0	4.00±0.10
P1	4.00±0.10
P2	2.00±0.10
A	3.40±0.20
B	6.60±0.20
D0	1.55±0.10
F	5.50±0.10
E	1.75±0.10
t 1	0.25±0.10
t 2	1.0±0.10

(Unit: mm)　Embossed Plastic Taping

Figure-9 Finish Specification of Leading end

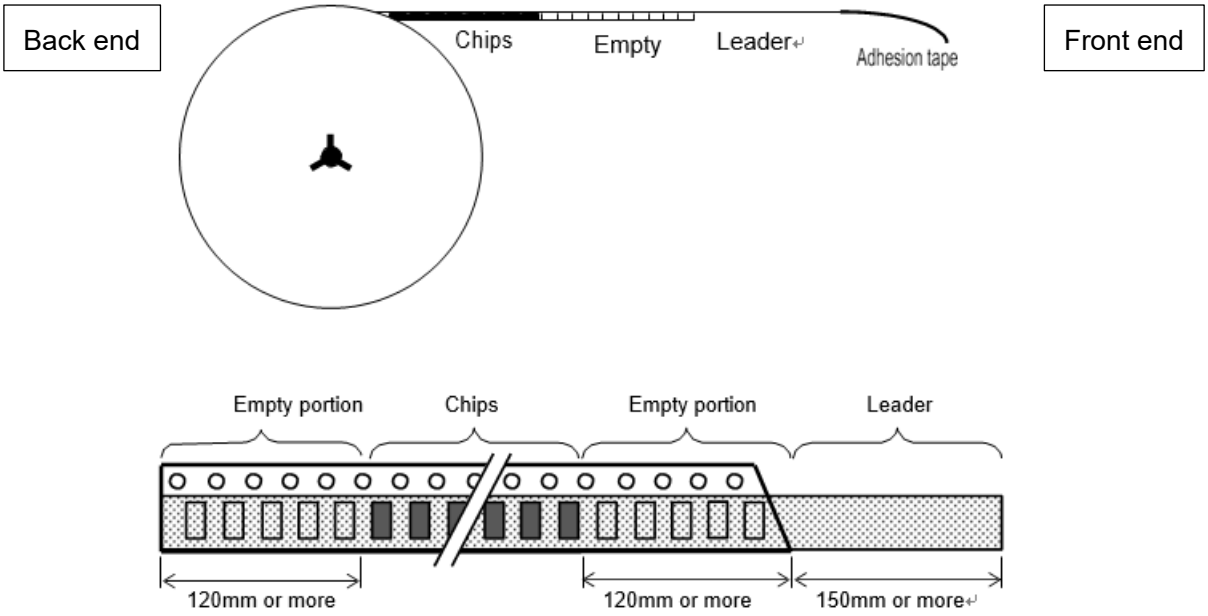
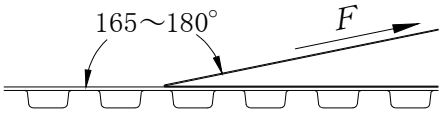
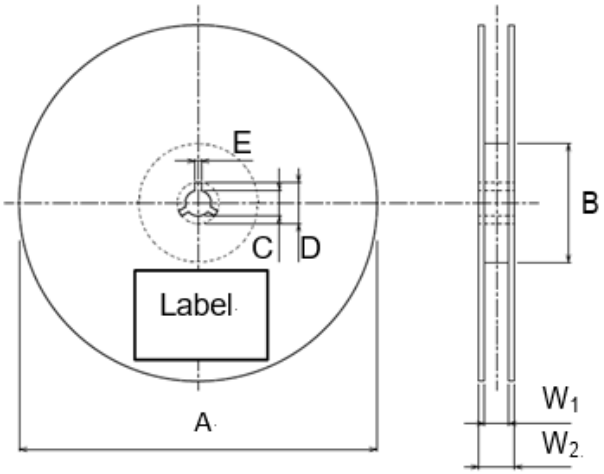


Figure -10 Cover Tape Peel-off Strength

F= Peel-off Strength： 0.1-1.0N (10-100gf)



Figigure-11 Reel Configuration(Plastic Reel)



Denote	6332
SPQ	4000
ϕ A	180±3.0
ϕ B	60.0±1.0
ϕ C	13.0±0.2
ϕ D	21.0±0.8
E	2.0±0.5
W1	13.0±0.3
W2	15.4±0.1

Material: Plastic　　(Unit: mm)

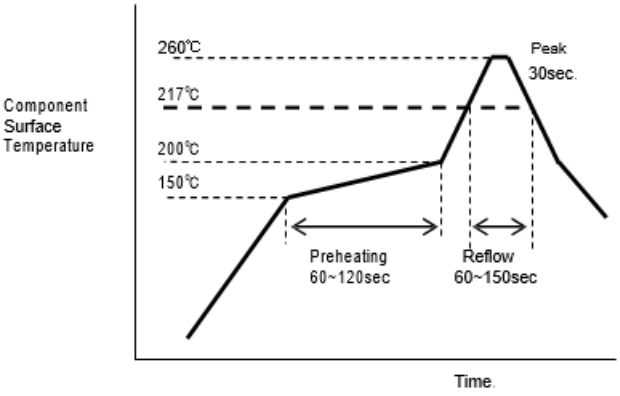
Figure-12 Labelling

LRT6432WR100F	←	Part number
QUANTITY 4,000pcs	←	Quantity
INSPTECTED F	←	Manufacturing Month
Y.E.D. CO., LTD.	←	Manufacture
70223408	←	Lot number
MADE IN JAPAN	←	Country of origin

Soldering Temperature Profile

Figure-13

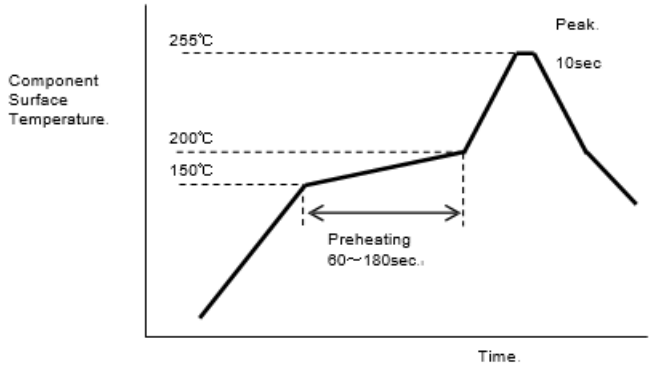
Reflow profile (max. 3 cycles)



	Lead-free solder Sn-3.0Ag-0.5Cu
Preheat.	150～200°C, 60～120sec.
Reflow	Min. 217°C, 60～150sec
Peak.	255~260°C, 30sec Max.

Figure-14

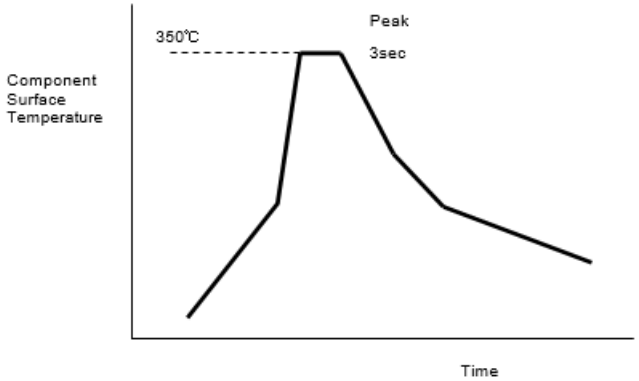
Flow profile (max. 3 cycless)



	Lead-free solder Sn-3.0Ag-0.5Cu
Preheat	150～200deg.C, 60～180sec.
Peak.	Max.255℃, 10sec or less

Figure-15

Soldering iron condition



	Lead-free solder Sn-3.0Ag-0.5Cu.
Soldering iron	Max.350deg. 3sec

Storage

The products should be kept packed and stored at temperature of 15~35°C and a humidity 25~85%RH. The products should not be left in the place affected by direct sunlight and harmful gas (chlorine, sulfur, etc.).
Warranty period: 1 year after shipping date.

***** E&OE *****