



Product Change Notification

TE Connectivity

Product Change Notification: P-21-021871

PCN Date: 13-DEC-21

TE would like to inform you of the following change(s) to the listed TE Connectivity Product. In case of any further questions about this change(s), please contact your TE Connectivity Sales Engineer. Affected part, drawing and/or specification numbers are listed on the attached sheet(s).

General Product Description:

Surface Mount Shunt Resistor - Type TLRs Series

Description of Changes

Minor changes to physical dimensions of individual products and clarification of drawing details. NB. Changed parts are within the parameters of the existing PCB Layout plan and will cause no change to performance. NB. This will be a rolling change with new parts shipped as stocks of old parts are exhausted. See individual drawings for detail. PCN-21-123065 also refers

Other attachments:

[TLRS Series Update](#)

[Old Datasheet](#)

[New Datasheet](#)

Reason for Changes:

Product improvement. In addition to these changes we are also able to offer four new items within the TLRs0630 type, which brings the power capability up to 5W for this size resistor. Please see attached datasheet for full details. Please Note; Dates mentioned are system driven, the change will begin to take effect over the next month.

Estimated Dates:

Last Order Date (Obsolete Parts Only):

First Date To Ship (Changed Parts Only):

29-JUL-2022

Last Ship Date (Obsolete Parts Only):

Last Date for Mixed Shipments: (Changed Parts Only):

No Mixed Shipments

Part Number(s) being Modified:

Part Number	Part Discontinued per PCN	Customer Drawing	Customer Part Number	Alias Part Number(s)	Substitute Part Number	Substitute Alias Part Number(s)	Description Of Difference
2176076-3	NO			"TLRS105030DR002FTDG", "TLRS105040ER002FTDG"			
2176077-3	NO			"TLRS157540ER002FTDG"			

The documents listed below are being modified. Related parts that are not explicitly listed on this PCN are not being modified or discontinued as per the PCN. The Last Order Date, Last Ship Date, First Date to Ship Changed Parts and last date for Mixed Shipments apply only to parts explicitly listed on this PCN.

Customer Drawing(s) Being Modified:

Drawing Number	Related Part Number	Customer Part Number	Current Revision	New Revision
2176076	2176076-3		BB	
2176077	2176077-3		BB	

Part Number(s) being Modified:

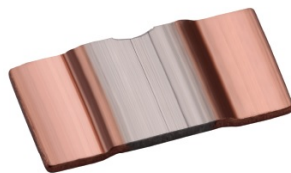
Part Number	Part Discontinued per PCN	Customer Drawing	Customer Part Number	Alias Part Number(s)	Substitute Part Number	Substitute Alias Part Number(s)	Description Of Difference
2176076-3	NO			"TLRS105030DR002FTDG", "TLRS105040ER002FTDG"			
2176077-3	NO			"TLRS157540ER002FTDG"			

The documents listed below are being modified. Related parts that are not explicitly listed on this PCN are not being modified or discontinued as per the PCN. The Last Order Date, Last Ship Date, First Date to Ship Changed Parts and last date for Mixed Shipments apply only to parts explicitly listed on this PCN.

Customer Drawing(s) Being Modified:

Drawing Number	Related Part Number	Customer Part Number	Current Revision	New Revision
2176076	2176076-3		BB	
2176077	2176077-3		BB	

PCN Document



In line with TE commitment to continuous improvement the following changes have been made in order to further optimize the product process and improve the product performance and stability, in line with the needs of the TE's key customers.

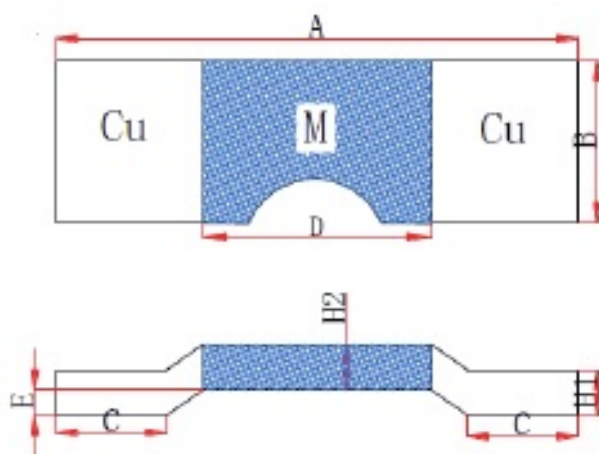
With that in mind the molds of the existing products will be changed, which will redefine the manufacturing dimensions of the main body of the products.

Please refer to the detail changes as below. Please note, the changes made will not prevent the product fitting on the current PCB plan.

We have also added four new items giving power ratings for the TLRS0632 model up to 5W

Please also see the new Data Sheet for full information.

Dimensions:



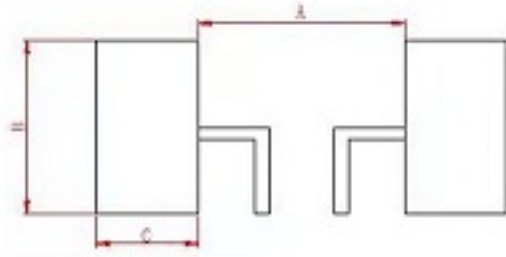
Before Change

Type	Resistance (mΩ)	Material	A ±0.3 (mm)	B ±0.3 (mm)	C ±0.3 (mm)	D ±0.3 (mm)	E nom (mm)	H1 nom (mm)	H2 nom (mm)
TLRS0630	0.3	Manganin	6.35	3.05	1.14	3.0	0.35	0.95	0.95
	0.5	Manganin	6.35	3.05	1.14	3.0	0.35	0.89	0.89
	0.9	Manganin	6.35	3.05	1.14	3.0	0.35	0.50	0.50
	1	Manganin	6.35	3.05	1.14	3.0	0.35	0.42	0.42
	2	Manganin	6.35	3.05	1.14	3.0	0.35	0.72	0.62
	3	NiCr alloy	6.35	3.05	1.14	3.0	0.35	0.48	0.42
TLRS1050	0.2, 0.3	Manganin	10.5	5.0	2.0	5.0	0.50	1.42	1.42
	0.5	Manganin	10.5	5.0	2.0	5.0	0.50	0.76	0.88
	1	Manganin	10.5	5.0	2.0	5.0	0.50	0.38	0.43
	2	NiCr alloy	10.5	5.0	2.0	5.0	0.50	0.69	0.64
	3	NiCr alloy	10.5	5.0	2.0	5.0	0.50	0.43	0.43
	4	NiCr alloy	10.5	5.0	2.0	5.0	0.50	0.32	0.32
TLRS1575	0.2	Manganin	15.2	7.5	4.0	5.0	0.50	1.42	1.42
	0.4	Manganin	15.2	7.5	4.0	5.0	0.50	0.76	0.74
	0.5	Manganin	15.2	7.5	4.0	5.0	0.50	0.56	0.56
	1	Manganin	15.2	7.5	4.0	5.0	0.50	0.84	0.84
	2	NiCr alloy	15.2	7.5	4.0	5.0	0.50	0.40	0.40
	3	NiCr alloy	15.2	7.5	4.0	5.0	0.50	0.27	0.27
5	NiCr alloy	15.2	7.5	4.0	5.0	0.50	0.20	0.20	

After Change

Type	Resistance (mΩ)	Material	A (mm)	B (mm)	C ±0.3 (mm)	D ±0.3 (mm)	E nom (mm)	H1 nom (mm)	H2 nom (mm)
TLRS0630	0.3	Manganin	6.35±0.3	3.05±0.3	1.14	3.0	0.35	0.95	0.95
	0.5	Manganin	6.35±0.3	3.05±0.3	1.14	3.0	0.35	0.89	0.89
	0.9	Manganin	6.35±0.3	3.05±0.3	1.14	3.0	0.35	0.45	0.45
	1	Manganin	6.35±0.3	3.05±0.3	1.14	3.0	0.35	0.5	0.5
	2	Manganin	6.35±0.3	3.05±0.3	1.14	3.0	0.35	0.72	0.62
	3	NiCr alloy	6.35±0.3	3.05±0.3	1.14	3.0	0.35	0.48	0.42
	4	NiCr alloy	6.35±0.3	3.05±0.3	1.14	3.0	0.35	0.36	0.42
	1	Karma alloy	6.40±0.2	3.2±0.25	1.14	3.0	0.35	0.42	0.42
	2		6.40±0.2	3.2±0.25	1.14	3.0	0.35	0.65	0.65
	3		6.40±0.2	3.2±0.25	1.14	3.0	0.35	0.43	0.43
4	6.40±0.2		3.2±0.25	1.14	3.0	0.35	0.32	0.32	
TLRS1050	0.2, 0.3	Manganin	10.5±0.3	5.0±0.3	2.0	5.0	0.50	1.5	1.5
	0.5	Manganin	10.5±0.3	5.0±0.3	2.0	5.0	0.50	0.95	0.95
	1	Manganin	10.5±0.3	5.0±0.3	2.0	5.0	0.50	0.43	0.43
	2	NiCr alloy	10.5±0.3	5.0±0.3	2.0	5.0	0.50	0.65	0.65
	3	NiCr alloy	10.5±0.3	5.0±0.3	2.0	5.0	0.50	0.43	0.43
	4	NiCr alloy	10.5±0.3	5.0±0.3	2.0	5.0	0.50	0.28	0.28
TLRS1575	0.2	Manganin	15.0±0.3	7.75±0.3	4.0	5.0	0.50	1.5	1.5
	0.4	Manganin	15.0±0.3	7.75±0.3	4.0	5.0	0.50	0.65	0.65
	0.5	Manganin	15.0±0.3	7.75±0.3	4.0	5.0	0.50	0.55	0.55
	1	Manganin	15.0±0.3	7.75±0.3	4.0	5.0	0.50	0.3	0.3
	2	NiCr alloy	15.0±0.3	7.75±0.3	4.0	5.0	0.50	0.43	0.43
	3	NiCr alloy	15.0±0.3	7.75±0.3	4.0	5.0	0.50	0.28	0.28
5	NiCr alloy	15.0±0.3	7.75±0.3	4.0	5.0	0.50	0.20	0.20	

Recommended PCB Plan (unchanged)



	A (mm)	B (mm)	C (mm)
TLRS0630	7.0±0.10	3.4±0.1	1.8±0.1
TLRS1050	5.6±0.15	6.2±0.3	2.7±0.3
TLRS1575	5.6±0.15	8.75±0.3	5.2±0.3

All electrical and environmental characteristics remain unchanged.

Type TLRS Series

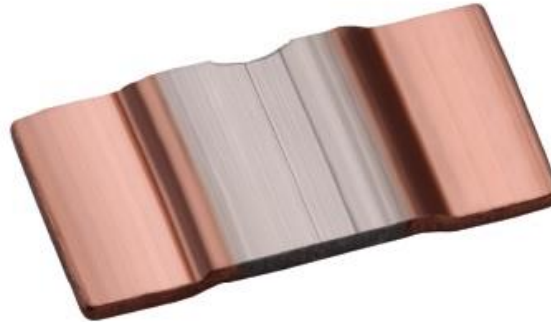
Key Features

Three Sizes

Power ratings
to 7W

Resistance
value from
0.2mΩ~5mΩ

Electron beam
welding,
stable
performance



Applications

Current
sensors for
Hybrid power
sources

Frequency
convertors

High Current
Handling for
Automotive
Engine
Controls and
Power
Management

TE Connectivity is pleased to offer this Low Ohmic Surface Mount Shunt Resistor. Featuring Heavy Copper connectors, electron beam welded to a Manganin or NiCr alloy element, this resistor offers excellent long term stability and low inductance, and can be mounted using re-flow soldering techniques or welding on copper.

Characteristics – Electrical

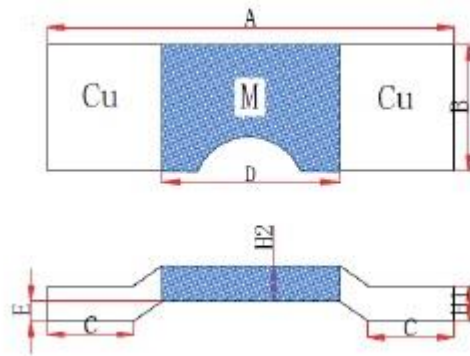
Type	Power Rating (W)	Resistance Range (mΩ)		TCR (PPM/°C)
		±1%	±5%	
TLRS0630	2.5	4		±100
	3	0.3, 0.5, 0.9, 1		±50
	3	2, 3		±100
TLRS1050	2	5		±100
	2.5	4		±100
	3	3		±100
	4	1		±60
	4	2		±100
	4	0.5		±75
TLRS1575	5	0.2, 0.3		±75
	3	5		±100
	3.5	3		±100
	4	2		±100
	6	0.5, 1		±100
	6	0.4		±50
	7	0.2		±50

Environmental Characteristics

Item	Requirement	Test Methods
Short time Overload	$\Delta R \leq \pm 0.5\%R$	Rated Power $\times 5$ for 5 seconds
Load Life	$\Delta R \leq \pm 1.0\%R$	70°C Rated Power for 1000 Hours
Resistance to Soldering Heat	$\Delta R \leq \pm 0.5\%R$	260°C for 10 \pm 1 seconds
Thermal Shock	$\Delta R \leq \pm 0.5\%R$	-55°C/175°C, 30min, 5 cycles
Moisture Resistance	$\Delta R \leq \pm 1.0\%R$	-55°C, 93 \pm 3%RH, 56 days
High Temperature Exposure	$\Delta R \leq \pm 1.0\%R$	175°C for 1000 hours
Vibration	$\Delta R \leq \pm 0.5\%R$	10~200Hz, 98m/S ² , 6 hours

Storage Temperature: 15 ~28 °C; Humidity < 80%RH

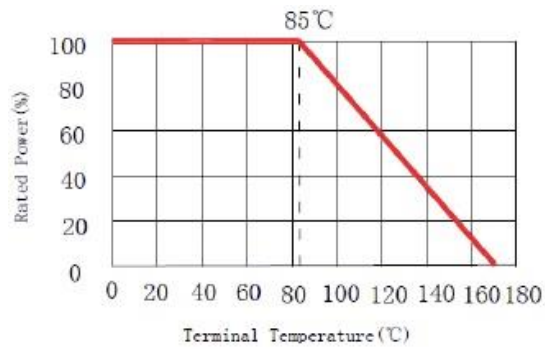
Construction and Dimensions:



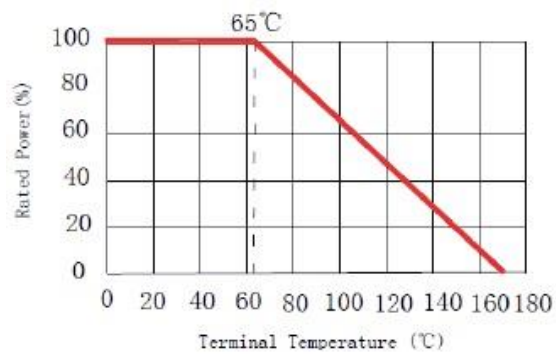
Type	Resistance (mΩ)	Material	A ±0.3 (mm)	B ±0.3 (mm)	C ±0.3 (mm)	D ±0.3 (mm)	E nom (mm)	H1 nom (mm)	H2 nom (mm)
TLRS0630	0.3	Manganin	6.35	3.05	1.14	3.0	0.35	0.95	0.95
	0.5	Manganin	6.35	3.05	1.14	3.0	0.35	0.89	0.89
	0.9	Manganin	6.35	3.05	1.14	3.0	0.35	0.50	0.50
	1	Manganin	6.35	3.05	1.14	3.0	0.35	0.42	0.42
	2	Manganin	6.35	3.05	1.14	3.0	0.35	0.72	0.62
	3	NiCr alloy	6.35	3.05	1.14	3.0	0.35	0.48	0.42
TLRS1050	0.2, 0.3	Manganin	10.5	5.0	2.0	5.0	0.50	1.42	1.42
	0.5	Manganin	10.5	5.0	2.0	5.0	0.50	0.76	0.88
	1	Manganin	10.5	5.0	2.0	5.0	0.50	0.38	0.43
	2	NiCr alloy	10.5	5.0	2.0	5.0	0.50	0.69	0.64
	3	NiCr alloy	10.5	5.0	2.0	5.0	0.50	0.43	0.43
	4	NiCr alloy	10.5	5.0	2.0	5.0	0.50	0.32	0.32
TLRS1575	0.2	Manganin	15.2	7.5	4.0	5.0	0.50	1.42	1.42
	0.4	Manganin	15.2	7.5	4.0	5.0	0.50	0.76	0.74
	0.5	Manganin	15.2	7.5	4.0	5.0	0.50	0.56	0.56
	1	Manganin	15.2	7.5	4.0	5.0	0.50	0.84	0.84
	2	NiCr alloy	15.2	7.5	4.0	5.0	0.50	0.40	0.40
	3	NiCr alloy	15.2	7.5	4.0	5.0	0.50	0.27	0.27
5	NiCr alloy	15.2	7.5	4.0	5.0	0.50	0.20	0.20	

Derating Curve

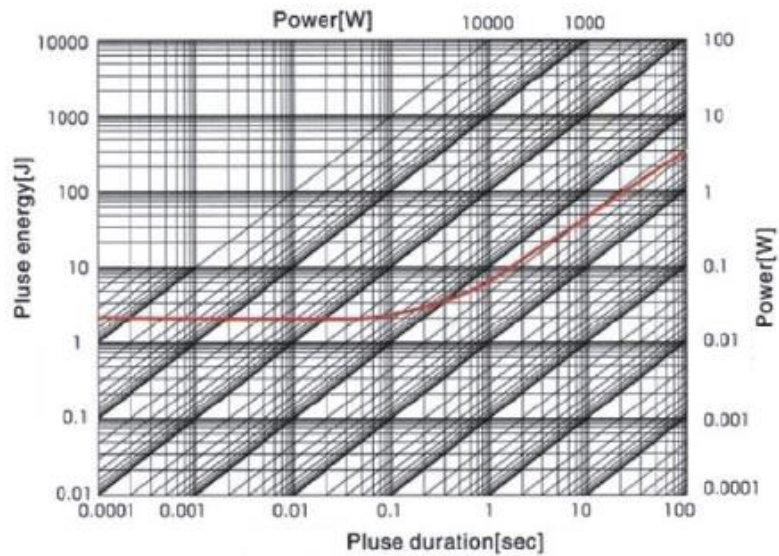
TLRS0630 / 1050



TLRS1575

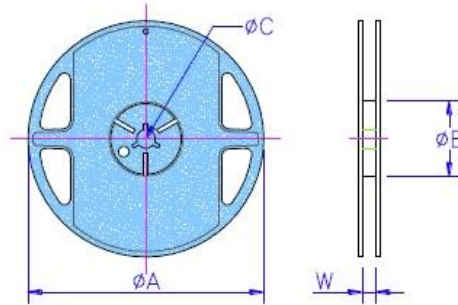


Pulse Energy



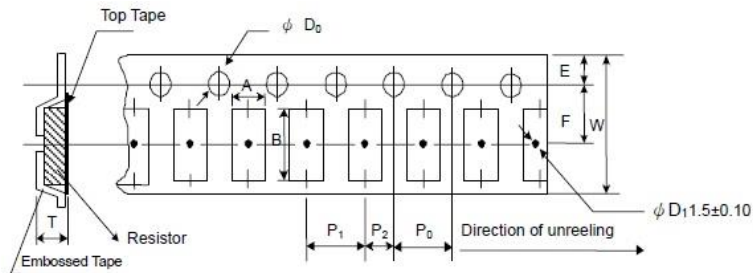
Packaging

Reel Dimensions (mm)



Type	Quantity	Tape Width (mm)	Reel Diameter (inch)	ØA ±1.0 (mm)	ØB ±0.5 (mm)	ØC +0.3/-0.2 (mm)	W ±0.5 (mm)
TLRS0630	5K	16	13	330.5	99.5	13.2	17.4
TLRS1050	3K	24	13	330.5	99.5	13.2	25.4
TLRS1575	2K	24	13	330.5	99.5	13.2	25.4

Tape Specifications – Embossed Plastic



Type	A ±0.1 (mm)	B ±0.1 (mm)	W ±0.3 (mm)	E ±0.1 (mm)	F ±0.15 (mm)	P ₀ ±0.1 (mm)	P ₁ ±0.1 (mm)	P ₂ (mm)	ØD ₀ +0.1 -0 (mm)	T ±0.1 (mm)
0630	3.5	6.8	16.0	1.75	7.5	4.0	8.0	2.0	1.5	1.45
1050	5.7	11.2	24.0	1.75	11.5	4.0	8.0	2.0	1.5	2.05
1575	8.2	15.9	24.0	1.75	11.5	4.0	12.0	2.0	1.5	2.05

How To Order

TLRS1050	40	E	R002	F	TDG
Common Part	Power Rating	TCR	Resistance Code	Tolerance Code	Packaging
TLRS0630 TLRS1050 TLRS1575	25 – 2.5W 30 – 3W 35 – 3.5W 40 – 4W 50 – 5W Etc.	D - ±50PPM P - ±60PPM W - ±75PPM E - ±100PPM	R0002 – 0.2mΩ R001 – 1mΩ	F - ±1% J - ±5%	TDG – Standard Tape and Reel Quantity as above chart

Type TLRS Series

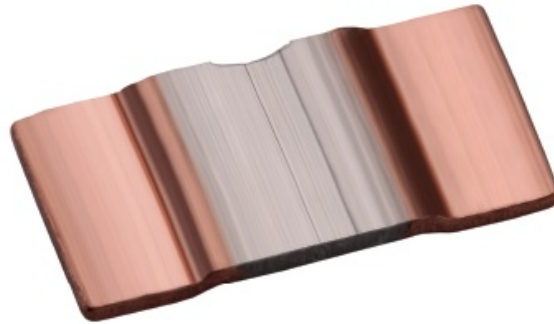
Key Features

Three Sizes

Power ratings to 7W

Resistance value from 0.2mΩ~5mΩ

Electron beam welding, stable performance



Applications

Current sensors for Hybrid power sources

Frequency converters

High Current Handling for Automotive Engine Controls and Power Management

TE Connectivity is pleased to offer this Low Ohmic Surface Mount Shunt Resistor. Featuring Heavy Copper connectors, electron beam welded to a Manganin or NiCr alloy element, this resistor offers excellent long term stability and low inductance, and can be mounted using re-flow soldering techniques or welding on copper.

Characteristics – Electrical

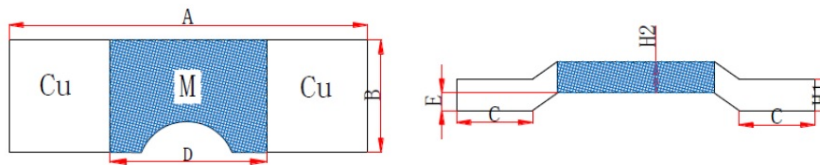
Type	Power Rating (W)	Material	Resistance Range (mΩ)		TCR (PPM/°C)
			±1%	±5%	
TLRS0630	2.5	NiCr alloy	4		±100
	3	Manganin	0.3, 0.5, 0.9, 1		±50
	3	Manganin	2		±100
		NiCr alloy	3		±100
	5	Manganin	1		±150
	5	Karma alloy	2, 3, 4		±50 ±100
TLRS1050	2	NiCr alloy	5		±100
	2.5	NiCr alloy	4		±100
	3	NiCr alloy	3		±100
	4	Manganin	1		±60
	4	NiCr alloy	2		±100
	4	Manganin	0.5		±75
	5	Manganin	0.2, 0.3		±75
TLRS1575	3	NiCr alloy	5		±100
	3.5	NiCr alloy	3		±100
	4	NiCr alloy	2		±100
	6	Manganin	0.5, 1		±100
	6	Manganin	0.4		±50
	7	Manganin	0.2		±50

Environmental Characteristics

Item	Requirement	Test Methods
Short time Overload	$\Delta R \leq \pm 0.5\%R$	Rated Power $\times 5$ for 5 seconds
Load Life	$\Delta R \leq \pm 1.0\%R$	70°C Rated Power for 1000 Hours
Resistance to Soldering Heat	$\Delta R \leq \pm 0.5\%R$ $\Delta R \leq \pm 1.0\%R$ (0630 5W)	260°C for 10 \pm 1 seconds
Thermal Shock	$\Delta R \leq \pm 0.5\%R$ $\Delta R \leq \pm 1.0\%R$ (0630 5W)	-55°C/175°C, 30min, 5 cycles
Moisture Resistance	$\Delta R \leq \pm 1.0\%R$	-55°C, 93 \pm 3%RH, 56 days
High Temperature Exposure	$\Delta R \leq \pm 1.0\%R$	175°C for 1000 hours
Vibration	$\Delta R \leq \pm 0.5\%R$	10~200Hz, 98m/S ² , 6 hours

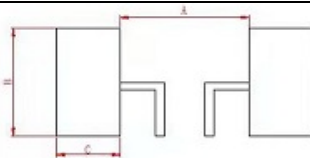
Storage Temperature: 15 ~28 °C; Humidity < 80%RH

Construction and Dimensions:

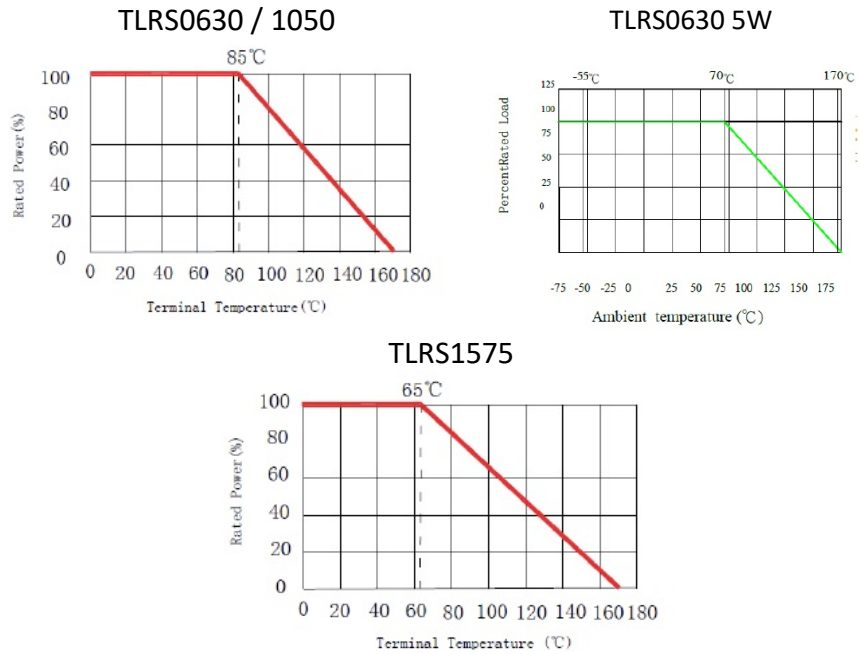


Type	Resistance (mΩ)	Material	A (mm)	B (mm)	C ± 0.3 (mm)	D ± 0.3 (mm)	E nom (mm)	H1 nom (mm)	H2 nom (mm)
TLRS0630	0.3	Manganin	6.35 \pm 0.3	3.05 \pm 0.3	1.14	3.0	0.35	0.95	0.95
	0.5	Manganin	6.35 \pm 0.3	3.05 \pm 0.3	1.14	3.0	0.35	0.89	0.89
	0.9	Manganin	6.35 \pm 0.3	3.05 \pm 0.3	1.14	3.0	0.35	0.45	0.45
	1	Manganin	6.35 \pm 0.3	3.05 \pm 0.3	1.14	3.0	0.35	0.5	0.5
	2	Manganin	6.35 \pm 0.3	3.05 \pm 0.3	1.14	3.0	0.35	0.72	0.62
	3	NiCr alloy	6.35 \pm 0.3	3.05 \pm 0.3	1.14	3.0	0.35	0.48	0.42
	4	NiCr alloy	6.35 \pm 0.3	3.05 \pm 0.3	1.14	3.0	0.35	0.36	0.42
	1	Manganin	6.40 \pm 0.2	3.2 \pm 0.25	1.14	3.0	0.35	0.42	0.42
	2	Karma alloy	6.40 \pm 0.2	3.2 \pm 0.25	1.14	3.0	0.35	0.65	0.65
	3		6.40 \pm 0.2	3.2 \pm 0.25	1.14	3.0	0.35	0.43	0.43
4	6.40 \pm 0.2		3.2 \pm 0.25	1.14	3.0	0.35	0.32	0.32	
TLRS1050	0.2, 0.3	Manganin	10.5 \pm 0.3	5.0 \pm 0.3	2.0	5.0	0.50	1.5	1.5
	0.5	Manganin	10.5 \pm 0.3	5.0 \pm 0.3	2.0	5.0	0.50	0.95	0.95
	1	Manganin	10.5 \pm 0.3	5.0 \pm 0.3	2.0	5.0	0.50	0.43	0.43
	2	NiCr alloy	10.5 \pm 0.3	5.0 \pm 0.3	2.0	5.0	0.50	0.65	0.65
	3	NiCr alloy	10.5 \pm 0.3	5.0 \pm 0.3	2.0	5.0	0.50	0.43	0.43
	4	NiCr alloy	10.5 \pm 0.3	5.0 \pm 0.3	2.0	5.0	0.50	0.28	0.28
	5	NiCr alloy	10.5 \pm 0.3	5.0 \pm 0.3	2.0	5.0	0.50	0.28	0.28
TLRS1575	0.2	Manganin	15.0 \pm 0.3	7.75 \pm 0.3	4.0	5.0	0.50	1.5	1.5
	0.4	Manganin	15.0 \pm 0.3	7.75 \pm 0.3	4.0	5.0	0.50	0.65	0.65
	0.5	Manganin	15.0 \pm 0.3	7.75 \pm 0.3	4.0	5.0	0.50	0.55	0.55
	1	Manganin	15.0 \pm 0.3	7.75 \pm 0.3	4.0	5.0	0.50	0.3	0.3
	2	NiCr alloy	15.0 \pm 0.3	7.75 \pm 0.3	4.0	5.0	0.50	0.43	0.43
	3	NiCr alloy	15.0 \pm 0.3	7.75 \pm 0.3	4.0	5.0	0.50	0.28	0.28
	5	NiCr alloy	15.0 \pm 0.3	7.75 \pm 0.3	4.0	5.0	0.50	0.20	0.20

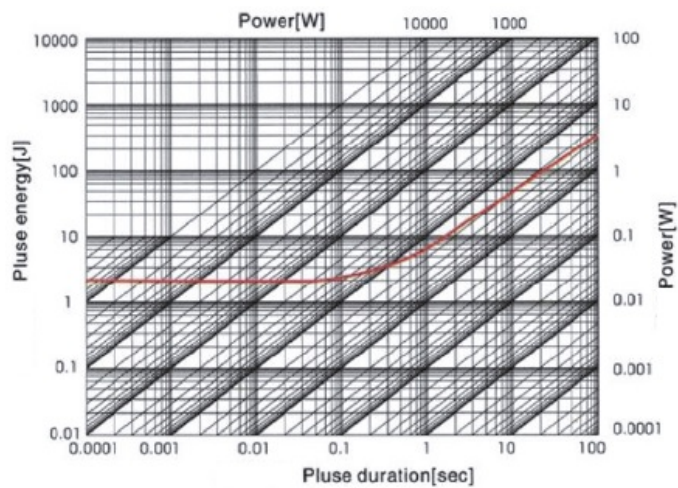
Recommended PCB Plan

		A (mm)	B (mm)	C (mm)
	TLRS0630	7.0±0.10	3.4±0.1	1.8±0.1
	TLRS1050	5.6±0.15	6.2±0.3	2.7±0.3
	TLRS1575	5.6±0.15	8.75±0.3	5.2±0.3

Derating Curve

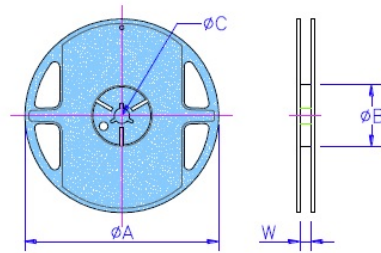


Pulse Energy



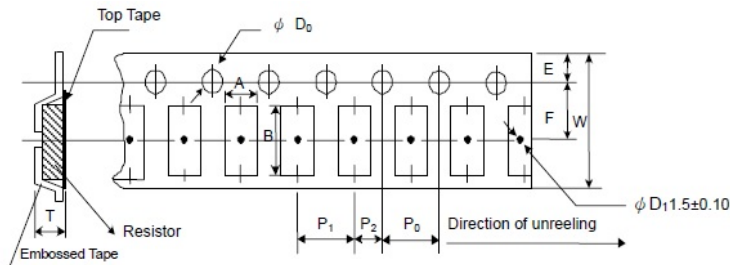
Packaging

Reel Dimensions (mm)



Type	Quantity	Tape Width (mm)	Reel Diameter (inch)	ØA ±1.0 (mm)	ØB ±0.5 (mm)	ØC +0.3/-0.2 (mm)	W ±0.5 (mm)
TLRS0630	5K	16	13	330.5	99.5	13.2	17.4
TLRS0630 5W	4K	16	13	330.0 ±2.0	60.0 ±1.0	13.5 ±0.5	17.0 ±1.0
TLRS1050	3K	24	13	330.5	99.5	13.2	25.4
TLRS1575	2K	24	13	330.5	99.5	13.2	25.4

Tape Specifications – Embossed Plastic



Type	A ±0.1 (mm)	B ±0.1 (mm)	W ±0.3 (mm)	E ±0.1 (mm)	F ±0.15 (mm)	P ₀ ±0.1 (mm)	P ₁ ±0.1 (mm)	P ₂ (mm)	ØD ₀ +0.1 -0 (mm)	T ±0.1 (mm)
0630	3.5	6.8	16.0	1.75	7.5	4.0	8.0	2.0	1.5	1.45
0630 5W	3.5	6.8	16.0	1.75	5.5	4.0	8.0	2.0	1.5	1.80
1050	5.7	11.2	24.0	1.75	11.5	4.0	8.0	2.0	1.5	2.05
1575	8.2	15.9	24.0	1.75	11.5	4.0	12.0	2.0	1.5	2.05

How To Order

TLRS1050	40	E	R002	F	TDG
Common Part	Power Rating	TCR	Resistance Code	Tolerance Code	Packaging
TLRS0630 TLRS1050 TLRS1575	25 – 2.5W 30 – 3W 35 – 3.5W 40 – 4W 50 – 5W Etc.	D - ±50PPM P - ±60PPM W - ±75PPM E - ±100PPM	R0002 – 0.2mΩ R001 – 1mΩ	F - ±1% J - ±5%	TDG – Standard Tape and Reel Quantity as above chart