

DATA SHEET

MOLDED RESISTORS

High Power, TO-220

NPM50V Series

$\pm 0.5\%$, $\pm 1\%$, $\pm 5\%$

50W

RoHS compliant & Halogen Free





ORDERING INFORMATION

Part number of the high power, molded resistor are identified by the series, power rating, tolerance, packing, temperature coefficient and resistance value.

PART NUMBER

NPM 50V J T F 22R
 (1) (2) (3) (4) (5) (6)

(1) SERIES NAME

NPM Series

(2) POWER RATING

50V = 50W

(3) TOLERANCE

D = ±0.5%

F = ±1%

J = ±5%

(4) PACKAGING

T = Box Pack

(5) TEMPERATURE COEFFICIENT OF RESISTANCE

E=±50ppm/°C

- = Based on spec

F=±100ppm/°C

(6) RESISTANCE VALUE

E24 & E96 & E192 Series

Example:

10R = 10Ω, 100R= 100Ω, 10K = 10,000Ω

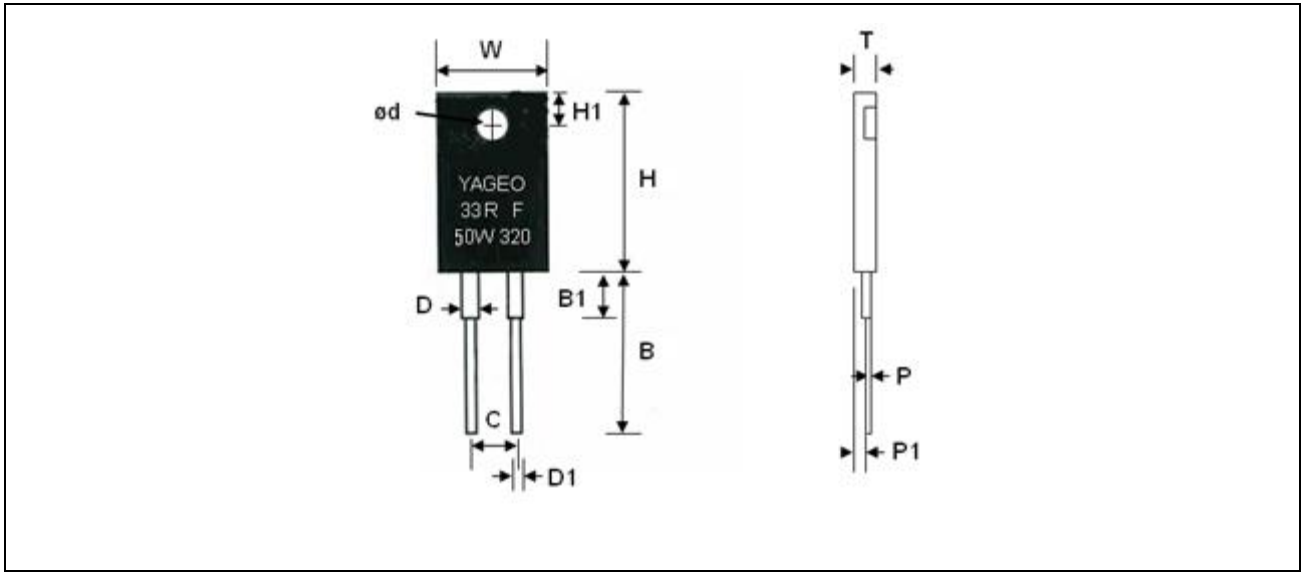
APPLICATIONS

- RF Power Amplifier, snubber circuit
- Switching mode power supply
- Automation control equipment
- Industrial power equipment
- UPS , voltage regulator
- Low power impulse loading

FEATURES

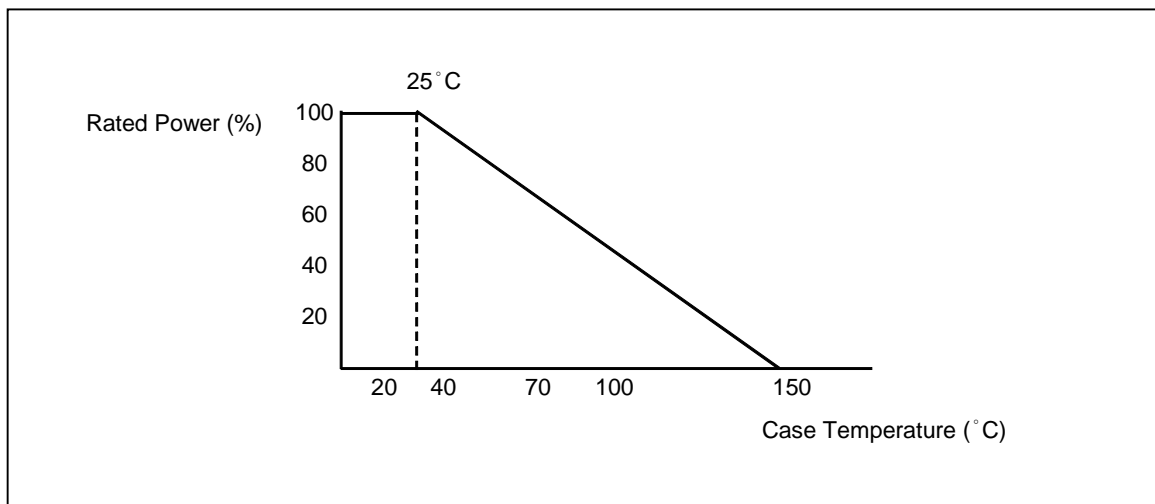
- Power rating up to 50W @ 25°C while heatsink mounted
- TO-220 molded type
- Molded case provides protection and easily to mount.
- Non- inductive design
- RoHS compliant & halogen free

DIMENSIONS



TYPE	DIMENSIONS												Unit: mm
Normal	$W \pm 0.5$	$H \pm 0.5$	$H1 \pm 0.5$	$B \pm 1.5$	$B1 \pm 1.0$	$D \pm 0.3$	$D1 \pm 0.2$	$\phi d \pm 0.3$	$C \pm 0.3$	$T \pm 0.5$	$P \pm 0.15$	$P1 \pm 0.3$	
NPM50V	10.41	16.26	3.18	12.7	3.3	1.27	0.86	3.18	5.08	3.18	0.55	1.78	

DERATING CURVE



ELECTRICAL CHARACTERISTICS

CHARACTERISTICS	NPM50V
Power Rating at 25°C on heat sink	50W
Power Rating at 25°C without heat sink	3W
Maximum Working Voltage	420V
Voltage Proof on Insulation	1800Vrms
Inductance	≤0.1μH
Operating Temp. Rang	-55°C to +150°C
Temperature Coefficient	±50ppm/°C , ±100ppm/°C, ±200ppm/°C, ±300ppm/°C

Note: For resistance value out of above range is by request.

RESISTANCE RANGE AND TEMPERATURE COEFFICIENT

Series	Resistance range			T.C.R (ppm/°C)
	±0.5%	±1%	±5%	
NPM50V	-	-	0.05Ω~1Ω	No Specified
	-	>1Ω~3Ω	>1Ω~3Ω	±300
	-	>3Ω~10Ω	>3Ω~10Ω	±100, ±200
	>10Ω~10KΩ	>10Ω~10KΩ	>10Ω~10KΩ	±50, ±100, ±200

TEST AND REQUIRMENTS

TEST	TEST METHOD	PROCEDURE	APPRAISE
Short Time Overload	IEC 60115-1 4.13	2 times of the rated power not to exceed 1.5 times maximum continuous working voltage for 5 seconds.	±0.5%
Voltage Proof on Insulation	IEC 60115-1 4.7	In V-Block for 60 sec. test voltage as above table	No Breakdown
Temperature Coefficient	IEC 60115-1 4.8	Between -55°C to +155°C	By Type
Insulation Resistance	IEC 60115-1 4.6	In V-Block for 60 sec.	>10,000MΩ
Solderability	IEC 60115-1 4.17	245±5°C for 3±0.5 Sec.	95% Min. coverage
Solvent Resistance of Marking	IEC 60115-1 4.30	IPA for 5±0.5 Min. with ultrasonic	No deterioration of coatings and markings
Robustness of Terminations	IEC 60115-1 4.16	Direct load for 10 Sec. the load of weight is 2.4N	±0.2%
Damp Heat Steady State	IEC 60115-1 4.24	40±2°C,90-95% RH at RCWV(or Umax., whichever less) for 1,000 Hr.(1.5 Hr.on,0.5 Hr. off)	±0.5%
Endurance at 25°C	IEC 60115-1 4.25	25±2°C at RCWV(or Umax., whichever less) for 1,000 Hr.(1.5 Hr.on,0.5 Hr. off)	±1.0%
Temperature Cycling	IEC 60115-1 4.19	è -65°C è Room Temp. è +150°C Room Temp.(5 cycles)	±0.5%
Resistance to Soldering Heat	IEC 60115-1 4.18	260±3°C for 10±1 Sec., immersed to a point 3±0.5mm from the body	±1.0%

Note:

RCWV (Rated Continuous Working Voltage):

The DC or AC (rms) continuous working voltage corresponding to the rated power is determined by the following formula:

$$V = \sqrt{P \times R}$$

or max. working voltage whichever is less

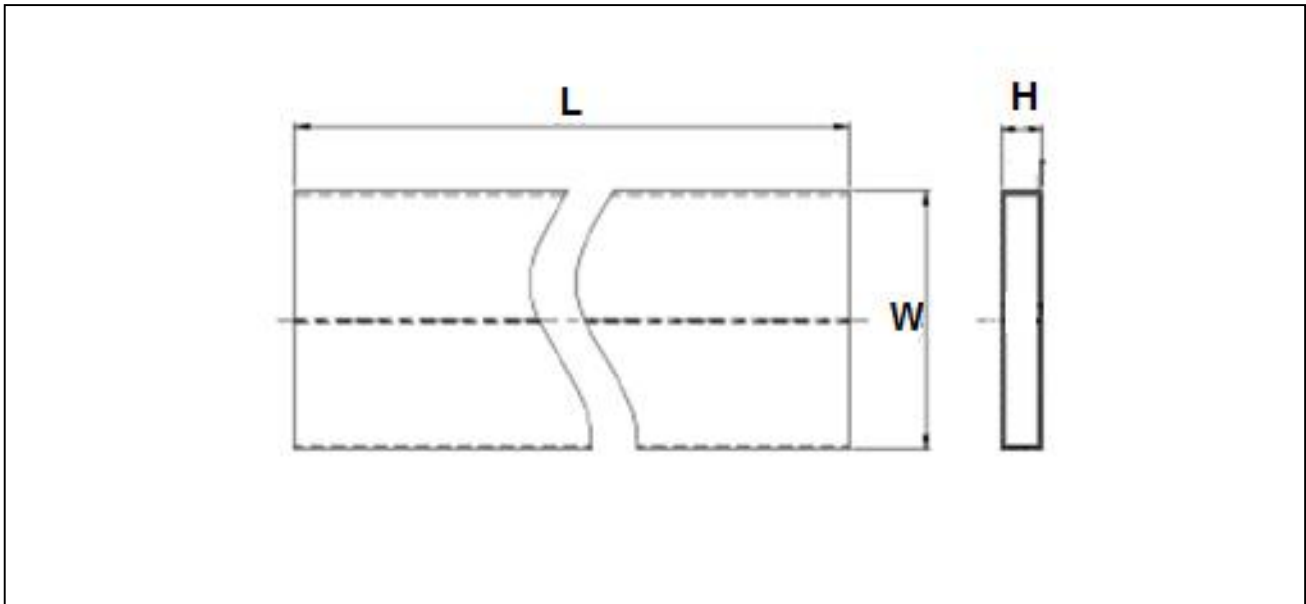
Where

V=Continuous rated DC or AC (rms) working voltage (V)

P=Rated power (W)

R=Resistance value (Ω)

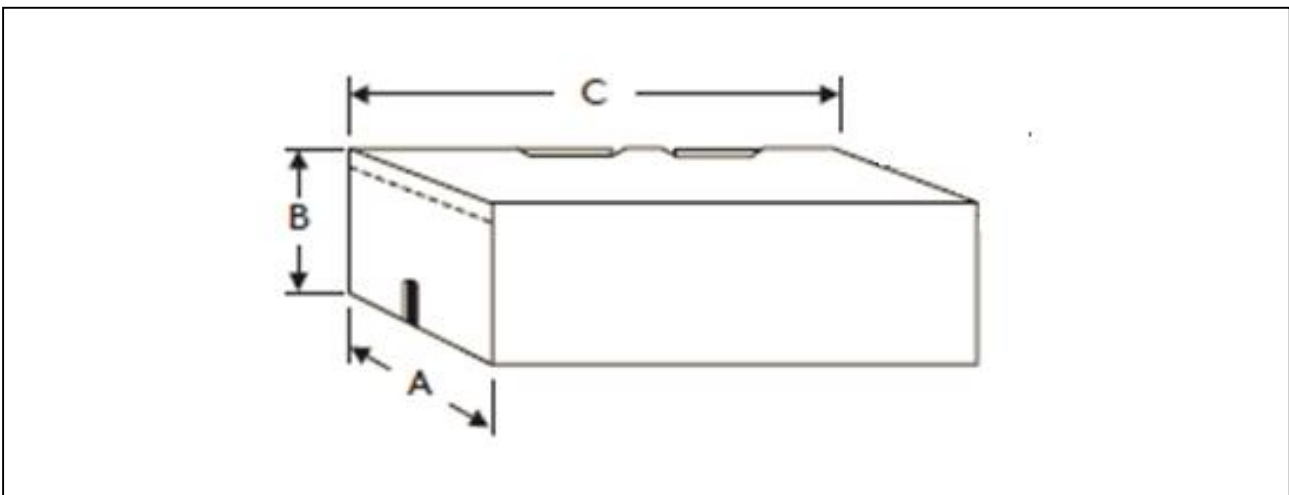
TAPE SPECIFICATION



Unit: mm

Normal	L	W	H	Qty per Tube (Max.)
NPM50V	529	32.6	7.2	50

TAPE ON BOX PACKING



TYPE	DIMENSIONS			Unit: mm/piece
Normal	A	B	C	Quantity Per Box (Max.)
NPM50V	80	90	540	1,000

MARKING



Example:

YAGEO	= Brand
320	= Date code
50W	= Power rating
33R	= Resistance
F	= Tolerance

REVISION HISTORY

REVISION	DATE	CHANGE NOTIFICATION	DESCRIPTION
Version 0	Sep.15, 2021	-	- First issue of this specification

“ Yageo reserves all the rights for revising the content of this datasheet without further notification, as long as the products itse lf are unchanged. Any product change will be announced by PCN.”

LEGAL DISCLAIMER

Yageo, its distributors and agents (collectively, "Yageo"), hereby disclaims any and all liabilities for any errors, inaccuracies or incompleteness contained in any product related information, including but not limited to product specifications, datasheets, pictures and/or graphics. Yageo may make changes, modifications and/or improvements to product related information at any time and without notice.

Yageo makes no representation, warranty, and/or guarantee about the fitness of its products for any particular purpose or the continuing production of any of its products. To the maximum extent permitted by law, Yageo disclaims (i) any and all liability arising out of the application or use of any Yageo product, (ii) any and all liability, including without limitation special, consequential or incidental damages, and (iii) any and all implied warranties, including warranties of fitness for a particular purpose, non-infringement and merchantability.

Yageo statements regarding the suitability of products for certain types of applications are based on Yageo's knowledge of typical operating conditions for such types of applications in a generic nature. Such statements are neither binding statements of Yageo nor intended to constitute any warranty concerning the suitability for a specific customer application or use. They are intended for use only by customers with requisite knowledge and experience for determining whether Yageo products are the correct products for their application or use. In addition, unpredictable and isolated cases of product failure may still occur, therefore, customer application or use of Yageo products which requires higher degree of reliability or safety, shall employ additional protective safeguard measures to ensure that product failure would not result in personal injury or property damage.

Yageo products are not designed for application or use in medical, life-saving, or life-sustaining devices or for any other application or use in which the failure of Yageo products could result in personal injury or death. Customers using or selling Yageo products not expressly indicated for above-mentioned purposes shall do so at their own risk and agree to fully indemnify Yageo and hold Yageo harmless.

Information provided here is intended to indicate product specifications only. Yageo reserves all the rights for revising this content without further notification, as long as products are unchanged. Any product change will be announced by PCN.