

the temperature coefficient of resistance (TCR). Table 1 summarizes the colours with all assigned parameters and their respective values.

Table 1 – Code colour prescriptions

Colour	Code	Example	Significant numeral	Multiplier	Tolerance	TCR
					%	$10^{-6}/K$
None	—		—	—	± 20	—
Pink	PK		—	10^{-3}	—	—
Silver	SR		—	10^{-2}	± 10	—
Gold	GD		—	10^{-1}	± 5	—
Black	BK		0	1	—	± 250
Brown	BN		1	10^1	± 1	± 100
Red	RD		2	10^2	± 2	± 50
Orange	OG		3	10^3	$\pm 0,05$	± 15
Yellow	YE		4	10^4	$\pm 0,02$	± 25
Green	GN		5	10^5	$\pm 0,5$	± 20
Blue	BU		6	10^6	$\pm 0,25$	± 10
Violet	VT		7	10^7	$\pm 0,1$	± 5
Grey	GY		8	10^8	$\pm 0,01$	± 1
White	WH		9	10^9	—	—

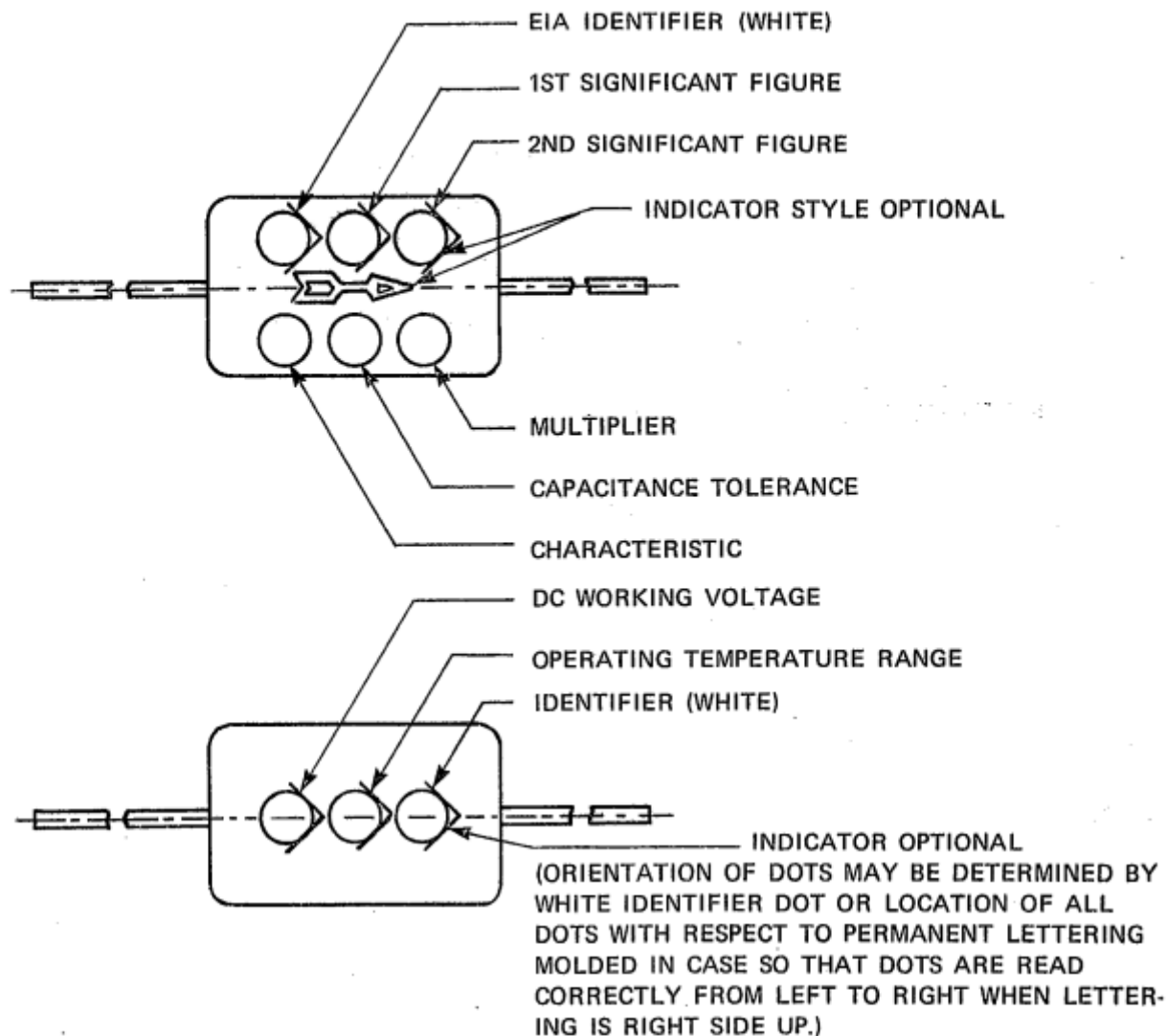
NOTE 1 The code letters are as defined in IEC 60757.

NOTE 2 The colours shown here as example are not intended as normative reference, but are applied for the purpose of consistent illustration only.

3.3 Methods for marking resistance value and tolerance

3.3.1 Marking of resistance values with two significant numerals

Resistors with a tolerance of $\pm 20\%$, whose resistance values are described with two significant numerals, are marked with a three-band colour code, consisting of two bands for the significant numerals, followed by one band for the multiplier. The absence of the fourth band indicates the tolerance of $\pm 20\%$. Figure 1 illustrates this with a 6,8 k Ω resistor with a tolerance of $\pm 20\%$.



NOTE: RIGHT SIDE

THE MULTIPLIER IS THE FACTOR BY WHICH THE TWO SIGNIFICANT FIGURES ARE MULTIPLIED TO YIELD THE NOMINAL CAPACITANCE.

Color	Characteristic	Capacitance		Capacitance Tolerance	Rated DC Voltage	Operating Temperature Range
		1st & 2nd Significant Figures	Multiplier (See Note)			
Black		0	1	±20% (M)		
Brown	B	1	10	±1% (F)	100	(N) -55° to +85°C
Red	C	2	100	±2% (G)	300	
Orange	D	3	1000		500	(O) -55° to +125°C
Yellow	E	4	10000			
Green	F	5		±5% (J)		
Blue		6				
Purple		7				
Gray		8				
White		9				
Gold			0.1	±1/2% (E)	1000	
Silver			0.01	±10% (K)		

FIGURE 4
STANDARD NINE-DOT COLOR SYSTEM

The package marking should include all items listed below:

1. Inductance value (See Paragraph 1.4)
2. Inductance tolerance
3. Type designation
4. Manufacturers trade mark or source code
5. Manufacturing date code

TABLE IV.

Color code.

Color	Significant figure	Multiplier 1/	Inductance tolerance (percent)
Black - - - - -	0	1	---
Brown - - - - -	1	10	+1%
Red- - - - -	2	100	+2%
Orange- - - - -	3	1,000	+3%
Yellow- - - - -	4	---	---
Green - - - - -	5	---	---
Blue- - - - -	6	---	---
Violet- - - - -	7	---	---
Gray- - - - -	8	---	---
White - - - - -	9	---	---
None 2/ - - - - -	---	---	±20
Silver- - - - -	---	---	±10
Gold- - - - -	Decimal point	---	±5

- 1/ The multiplier is the factor by which the two significant figures are multiplied to yield the nominal inductance value.
2/ Indicates body color.

3.5 Workmanship

Parts shall be processed in such a manner as to be uniform in quality and be free from defects that will affect life, serviceability or function.

3.6 Packaging

Unless otherwise specified item quantities higher than 499 pieces shall be packaged in accordance with EIA RS-296 "Lead Taping of Components in Axial Lead Configuration for Automatic Insertion". Other quantities shall be in normal commercial bulk packages.

COLOR CODING OF DISCRETE SEMICONDUCTOR DEVICES

(From EIA Standards Proposal No.1819, formulated under the cognizance of the JC-10 Committee on Terms, Definitions, and Symbols.)

1 Scope

This Standard details the rules to be followed if color coding is used to identify JEDEC-assigned type numbers or for cathode identification of discrete semiconductor devices.

The use of color coding shall be guided by the following general principles:

If an end color marking coincides with the device body color, or if the color coding is otherwise not sufficiently distinctive, color coding shall not be used. This does not preclude the use of a single color mark to identify a cathode in accordance with clause 5.

2 Prefix Identification

The prefix identification consisting of a first number symbol and the letter "N" shall not be indicated in the color coding.

3 Type-number coding

The sequence number consisting of a two-, three-, or four-digit number after the letter "N" shall be color coded as follows:

3.1 Two-digit sequence numbers shall consist of a first black mark and the sequence number in second and third marks of the colors indicated in Table 1. If a suffix letter is required, it shall be indicated with a fourth color mark as indicated in Table 1.

3.2 Three-digit sequence numbers shall consist of the sequence number in the first, second, and third marks of the colors indicated in Table 1. If a suffix letter is required, it shall be indicated with a fourth color mark as indicated in Table 1.

3.3 Four-digit sequence numbers shall consist of the sequence number in four marks of colors indicated in Table 1 with a fifth black mark. If a suffix letter is required, it shall be indicated as the fifth color mark and shall replace the black mark.

4 Color marks

4.1 On cylindrical bodies the color marks shall be circumferential and unbroken bands.

4.2 Color bands shall be not less than 1/64" (0.4 mm) wide and separated from each other by the same minimum distance. If other color marks are used, their minimum dimension shall be increased to ensure identification of the colors.

4.3 The sequence numbers of the type numbers and suffix letter shall be indicated by the colors in Table 1.

TABLE 1

Number	Color	Suffix Letter
0	Black	Not applicable
1	Brown	A
2	Red	B
3	Orange	C
4	Yellow	D
5	Green	E
6	Blue	F
7	Violet	G
8	Gray	H
9	White	J

4.4 The colors used shall conform to the latest issue of Recommended Standard EIA-359 for "Colors for Color Identification and Coding".

4.5 If the body color of a device is the same as that of a mark, the mark may be indicated by a blank space between adjacent marks. The width of the blank space shall be equal to the mark width plus the width of its adjacent separations.

If this marking is not deemed sufficiently distinctive, or if the particular mark appears at the beginning or the end of the number, color coding shall not be used.

5 Cathode identification and reading sequence

5.1 On cylindrical bodies the bands shall clearly be grouped closer to one end of the device and shall be read starting with the band closest to the end of the device.

5.2 On cylindrical diode and rectifier devices for which it is necessary to indicate polarity, the bands shall be closer to the cathode end. If color coding is not used for type-number identification, a single band may be placed at the cathode end to identify that electrode.

5.3 For cylindrical devices on which it is difficult to group bands closer to one end than the other, the first band shall be double width.