THIN FILM RESISTORS

MCS 0402, MCT 0603, MCU 0805, and MCA 1206 Series

Professional Thin Film Flat Chip Resistors

KEY BENEFITS

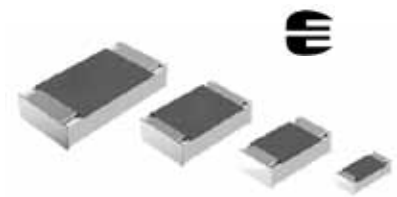
- Thin film technology
- Temperature coefficient of resistance (TCR): ± 25 to ± 50 ppm/K
- Professional tolerance options: ± 0.5 and ± 1 %
- Overall stability: class 0.5 and 1
- Approved according to EN 140 401-801

APPLICATIONS

- Telecommunications
- Industrial equipment
- Automotive electronics
- Test and measurement equipment
- Medical equipment

Datasheet is available on our web site at www.vishay.com
for Professional Flat Chip Resistors - http://www.vishay.com/doc?28705

Professional Thin Film Chip Resistors



MCS 0402, MCT 0603, MCU 0805 and MCA 1206 Professional Thin Film Flat Chip Resistors are the perfect choice for most fields of modern professional electronics where reliability and stability is of major concern. Typical applications include telecommunication, medical equipment and high-end computer and audio/video electronics.

FEATURES

- Approved according to EN 140401-801
- Excellent overall stability: Class 0.5
- Professional tolerance of value: ± 0.5 % and ± 1 %
- Lead (Pb)-free solder contacts
- Compliant to RoHS directive 2002/95/EC

RoHS COMPLIANT

APPLICATIONS

- Automotive
- Telecommunication
- Medical equipment
- Industrial equipment

METRIC SIZE				
INCH:	0402	0603	0805	1206
METRIC:	RR 1005M	RR 1608M	RR 2012M	RR 3216M

TECHNICAL SPECIFICATIONS

DESCRIPTION	MCS 0402		MCT 0603		MCU 0805		MCA 1206	
Metric size	RR 1005M		RR 1608M		RR 2012M		RR 3216M	
Resistance range	10 Ω to 4.99 MΩ		1 Ω to 10 MΩ		1 Ω to 10 MΩ		1 Ω to 2 MΩ	
Resistance tolerance	± 1 %; ± 0.5 %							
Temperature coefficient	± 50 ppm/K; ± 25 ppm/K							
Operation mode	Standard	Power	Standard	Power	Standard	Power	Standard	Power
Climatic category (LCT/UCT/days)	55/125/56	55/155/56	55/125/56	55/155/56	55/125/56	55/155/56	55/125/56	55/155/56
Rated dissipation, P_{70} (1)	0.063 W	0.1 W	0.1 W	0.125 W	0.125 W	0.2 W	0.25 W	0.4 W
Operating voltage, $U_{max.}$ AC/DC	50 V		75 V		150 V		200 V	
Film temperature	125 °C	155 °C	125 °C	155 °C	125 °C	155 °C	125 °C	155 °C
Max. resistance change at P_{70} for resistance range, $\|\Delta R/R\|$ max., after:	10 Ω to 4.99 MΩ		1 Ω to 10 MΩ		1 Ω to 10 MΩ		1 Ω to 10 MΩ	
1000 h	≤ 0.25 %	≤ 0.5 %	≤ 0.25 %	≤ 0.5 %	≤ 0.25 %	≤ 0.5 %	≤ 0.25 %	≤ 0.5 %
8000 h	≤ 0.5 %	≤ 1.0 %	≤ 0.5 %	≤ 1.0 %	≤ 0.5 %	≤ 1.0 %	≤ 0.5 %	≤ 1.0 %
225 000 h	≤ 1.5 %		≤ 1.5 %		≤ 1.5 %		≤ 1.5 %	
Insulation voltage:								
1 min; U_{ins}	75 V		100 V		200 V		300 V	
Continuous	75 V		75 V		75 V		75 V	
Failure rate: $FIT_{observed}$	≤ 0.1 x 10^{-9}/h		≤ 0.1 x 10^{-9}/h		≤ 0.1 x 10^{-9}/h		≤ 0.1 x 10^{-9}/h	

Notes

(1) The power dissipation on the resistor generates a temperature rise against the local ambient, depending on the heat flow support of the printed-circuit board (thermal resistance). The rated dissipation applies only if the permitted film temperature is not exceeded.

- These resistors do not feature a limited lifetime when operated within the permissible limits. However, resistance value drift increasing over operating time may result in exceeding a limit acceptable to the specific application, thereby establishing a functional lifetime.

Revision 20-Nov-09

PART NUMBER AND PRODUCT DESCRIPTION (1)

PART NUMBER: MCT06030D4641DPW00

M	C	T	0	6	0	3	0	D	4	6	4	1	D	P	W	0	0

MODEL/SIZE	SPECIAL CHARACTER	TCR	VALUE	TOLERANCE	PACKAGING	SPECIAL
MCS0402 **MCT0603** **MCU0805** **MCA1206**	**0** = Neutral	**D** = ± 25 ppm/K **C** = ± 50 ppm/K **Z** = Jumper	**3 digit value 1 digit multiplier** MULTIPLIER **7** = $*10^{-3}$ **8** = $*10^{-2}$ **9** = $*10^{-1}$ **0** = $*10^{0}$ **1** = $*10^{1}$ **2** = $*10^{2}$ **3** = $*10^{3}$ **4** = $*10^{4}$ **5** = $*10^{5}$ **6** = $*10^{6}$ **0000** = Jumper	**D** = ± 0.5 % **F** = ± 1 % **Z** = Jumper	**P5** **PW** **E0**	Up to 2 digits **00** = Standard

PRODUCT DESCRIPTION: MCT 0603-25 0.5 % PW 4K64

MCT	0603	-25	0.5 %	PW	4K64
MODEL	SIZE	TCR	TOLERANCE	PACKAGING	RESISTANCE VALUE
MCS **MCT** **MCU** **MCA**	**0402** **0603** **0805** **1206**	± **25** ppm/K ± **50** ppm/K	± **0.5** % ± **1** %	**P5** **PW** **E0**	**47K** = 47 kΩ **50R1** = 50.1 Ω **0R0** = Jumper (2)

Notes

(1) Products can be ordered using either the PRODUCT DESCRIPTION or the PART NUMBER

(2) Jumpers are ordered by the resistance value 0 Ω, e.g. MCT 0603 P5 0R0

TEMPERATURE COEFFICIENT AND RESISTANCE RANGE

DESCRIPTION		RESISTANCE VALUE (3)			
TCR	**TOLERANCE**	**MCS 0402**	**MCT 0603**	**MCU 0805**	**MCA 1206**
± 50 ppm/K	± 1 %	**10 Ω to 4.99 MΩ**	**1 Ω to 10 MΩ**	**1 Ω to 10 MΩ**	1 Ω to 2 MΩ
	± 0.5 %	100 Ω to 221 kΩ	39 Ω to 511 kΩ	10 Ω to 1.5 MΩ	10 Ω to 2 MΩ
± 25 ppm/K	± 0.5 %	**100 Ω to 221 kΩ**	**39 Ω to 511 kΩ**	**10 Ω to 1.5 MΩ**	**10 Ω to 2 MΩ**
Jumper	-	≤ 20 mΩ; $I_{max.}$ = 0.63 A	≤ 20 mΩ; $I_{max.}$ = 1 A	≤ 20 mΩ; $I_{max.}$ = 1.5 A	≤ 20 mΩ; $I_{max.}$ = 2 A

Note

(3) Resistance values to be selected for ± 1 % tolerance from E24 and E96; for ± 0.5 % tolerance from E24 and E192

Resistance ranges printed in bold are preferred TCR/tolerance combinations with optimized availability.

PACKAGING

MODEL	REEL	
	PIECES/ PAPER TAPE ON REEL	CODE
MCS 0402	10 000	E0
MCT 0603	5000	P5
	20 000	PW
MCU 0805	5000	P5
	20 000	PW
MCA 1206	5000	P5

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