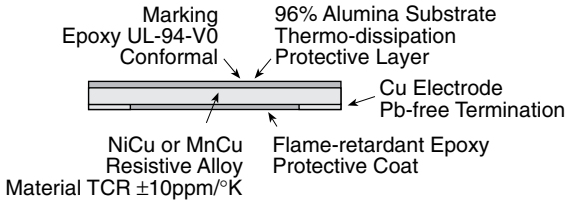
MCS Series

Metal Element Current Sense Resistive Metal Alloy mOhm Technology, SMD



Series	Power Rating (@70°C)	Resistance TCR (ppm/°C) 5mΩ	10mΩ	15mΩ	20mΩ	25mΩ	30mΩ	40mΩ	50mΩ
MCS1632	1W	<200	<70	<40	<40	<40	<40	<40	<40
MCS3264	2W	<200	<70	<40	<40	<40	<40	<40	<40

FEATURES

- NiCu or MnCu resistive alloy; material TCR ±10ppm/°K
- Marking epoxy UL-94-V0 conformal
- 96% alumina substrate thermo dissipation protective layer
- Cu terminal electrode Pb-free termination
- Flame-retardant epoxy protective coat (UL-94-V0)
- Ultra low resistance value (0.005Ω ~ 0.050Ω); long side electrode to satisfy the most demanding current-sense applications.
- Precision resistance alloy (NiCr20AlSi, or CuMnNi); material selected for low TCR (<50ppm/°C)
- Superior temperature coefficient characteristics; resistance vs. temp. change from 25°C to 125°C within 10ppm/°C ~ 50ppm/°C
- Low inductance, low thermo EMF (<50μV/°C)

APPLICATIONS

- Industrial electronics, power electronics: power supply, DC/DC converter, AC/DC converter, motor controller, automotive electronics
- Battery charger, PC, PDA, 3C products, Telecommunications, instruments, white goods

SPECIFICATIONS

Resistance Range: 0.005Ω - 0.05Ω

Color: white (top) / green (bottom)

Power: 1 and 2 watts at 70°C

Standard resistance values (mΩ): 5, 10, 15, 20, 25, 30, 35, 50

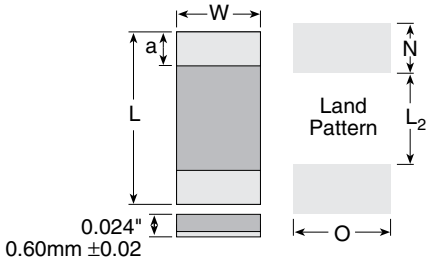
TCR: ±50ppm/°C (two standard series of temperatures: 25°C, 0°C, -15°C, -55°C and 25°C, 50°C, 75°C, 125°C, 150°C; temp. tolerance ±3°C; TCR = (R2-R1)/R1(T2-T1)x10^6)

Tolerance: 1%, 3%, 5%

Rated voltage: (PxR)$^{1/2}$

DIMENSIONS (in./mm±0.02)

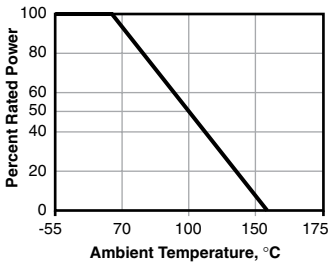
Size	L	W	a	N	L_2	O	Solder Thickness (μm/w)
MCS1632	0.126/3.20	0.063/1.60	0.020/0.50	0.059/1.50	0.039/1.00	0.079/2.00	35/0.5, 105/1.0
MCS3264	0.252/6.40	0.126/3.20	0.040/1.00	0.079/2.00	0.165/4.20	0.150/3.80	35/1.0, 105/2.0



PACKAGING (in./mm)

Size	Tape width ±0.30mm	Reel diam. ±0.50mm	Pc/Reel	Weight (g ±10)	Part. no.
MCS1632	0.315/8.00	7.00/178.0	5000	131	T5
MCS3264	0.472/12.00	7.00/178.0	4000	291	T4

DERATING



PERFORMANCE CHARACTERISTICS

Test	Condition	Maximum ΔR
Short Time Overload	JIS C 5201 4.13; Overload voltage 2.5x rated voltage for 5 sec.	±(0.5% +0.0005Ω)
High Temp. Exposure	JIS C 5202 7.11; Test chamber 155 ±3°C for 1000 +48/-0 hours	±(0.5% +0.0005Ω)
Low Temp. Storage	JIS C 5202 7.1; Test chamber -55 ±3°C for 96 ±4 hours	±(0.5% +0.0005Ω)
Endurance under Damp and Load	JIS C 5202 7.9; Temp. 60 ±2°C, relative humidity 90-95%, rated DC voltage applied 90 min. on, 30 min. off for 1000 +48/-0 hours	±(0.5% +0.0005Ω)
Thermal Shock	JIS C 5202 7.4; -55 ±3°C for 30 min. to room temp for 2-3 min. to +150 ±2°C for 30 min. to room temp for 2-3 min., 100 cycles	±(0.5% +0.0005Ω)
Load Life	JIS C 5202 7.10; Temp. 70 ±2°C, rated DC voltage applied 90 min. on, 30 min. off for 1000 +48/-0 hours	±(1% +0.0005Ω)
Solderability	JIS C 5202 6.5; Solder temp. 235 ±5°C, 2 ±0.5 sec. immersion	New solder min. 90% of terminal
Resistance to Solder Heat	JIS C 5202 6.4; Solder temp. 260 ±5°C, 10 ±1 sec. immersion	±(0.5% +0.0005Ω)
Mechanical Shock	JIS C 5202 6.2; Load 10N (1.02kgf) for 10 ±1 sec., middle of specimen pressurized	±(0.5% +0.0005Ω)
Insulation Resistance	JIS C 5202 5.6; DC 100 ±15V for 1 min.	>10^{2}MΩ

STANDARD VALUES

Part Number	Power Rating	Ohm Value	Qty./ Reel	Part Number	Power Rating	Ohm Value	Qty./ Reel
MCS1632R010FER	1W	0.01Ω	5000	MCS3264R005FER	2W	0.005Ω	4000
MCS1632R015FER	1W	0.015Ω	5000	MCS3264R010FER	2W	0.01Ω	4000
MCS1632R020FER	1W	0.02Ω	5000	MCS3264R015FER	2W	0.015Ω	4000
MCS1632R025FER	1W	0.025Ω	5000	MCS3264R020FER	2W	0.02Ω	4000
MCS1632R050FER	1W	0.05Ω	5000	MCS3264R025FER	2W	0.025Ω	4000
				MCS3264R050FER	2W	0.05Ω	4000

ORDERING INFORMATION

RoHS Compliant

M C S 1 6 3 2 R 0 0 5 F E R

Series	Case Size	Ohms	Tolerance	Taping Code
Metal Alloy Current Sense	1632 = 1w 3264 = 2w	R005 = 0.005Ω	F = 1%	1632 = 5,000 pc/reel 3264 = 4,000 pc/reel

Check product availability at **www.ohmite.com**