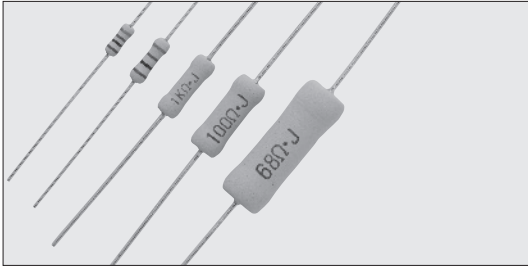


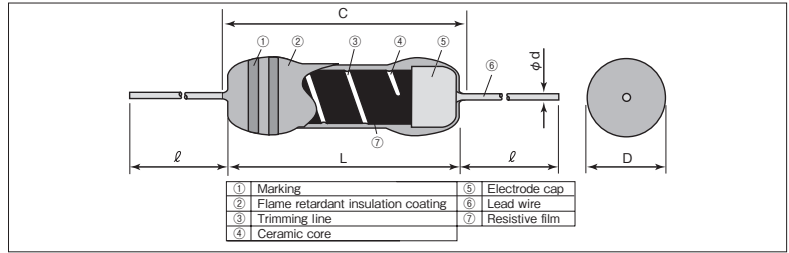
## MOS Fixed Metal Oxide Film Resistors (Small type)

## MOSX Fixed Metal Film Resistors (Small type)



Coating color : Lavender  
 Marking : Color code (0.5W, 1W)  
 Alphanumeric (2W, 3W, 5W)

### Construction



### Dimensions

Type	Dimensions (mm)					Weight (g) (1000pcs)
	L	C Max.	D	d(Nominal)*1	ℓ*1	
MOS(X) 1/2	6.2±0.5	7.1	2.5±0.5	0.6	24Min.	250
MOS(X) 1	9.0±1.0	11.1	3.0±0.5			350
MOS(X) 2	12.0±1.0	15.0	4.0±0.5	0.8	30±3	800
MOS(X) 3	15.5±1.0	18.0	6.0±1.0			1,400
MOS(X) 5	24.5±1.0	28.0	9.0±1.0			38±3

\*1 Lead length changes depending on taping and forming type. Example: 1C, 1CT52, 1CT526=0.6mm 1C8, 1CT528=0.8mm

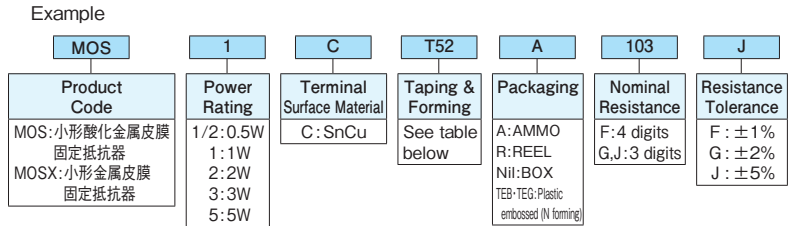
### Features

- Small size power type resistors.
- Flame retardant coating. (Equivalent to UL94 V-0)
- Automatic insertion is applicable.
- Various types of formings are available.
- High reliability.
- Products meet EU-RoHS requirements.
- Automatic mounting machine is applicable by surface mounted device style lead forming.

### Reference Standards

IEC 60115-4  
 JIS C 5201-4  
 EIAJ RC-2138

### Type Designation



Contact us when you have control request for environmental hazardous material other than the substance specified by EU-RoHS.  
 For further information on taping and forming, please refer to APPENDIX C on the back pages.

### Taping & Forming Matrix

Type	Axial Taping				Stand-off Axial Taping			VT Radial Taping			GT Radial Taping		L Forming*2					U Forming		M Forming*2						N Forming*2							
	T26	T52	T521	T631	L52	L521	L631	VTP	VTE	VTF	GT	GT4	L10A	L12.5A	L15A	L20A	L25A	L30A	L35A	U	UCL	M10	M12.5	M15	M16	M20	M26	M30	N14.5	N17	N20		
MOS(X) 1/2C	○	○	—	—	—	—	—	○	○	—	○	—	○	—	—	—	—	—	—	—	—	○	—	—	—	—	—	—	—	—	—	—	
MOS(X) 1C	—	○	—	—	○	—	—	○	—	—	○	—	○	—	—	—	—	—	—	—	—	○	—	—	—	—	—	—	—	—	—	—	
MOS(X) 2C	—	○	○	—	—	○	—	○	—	—	○	—	—	—	—	—	—	—	—	—	—	—	—	○	—	—	—	—	—	—	—	—	
MOS(X) 3C	—	—	○	○	—	○	—	—	—	—	○	—	—	—	—	—	—	—	—	—	—	—	—	—	○	—	—	—	—	—	—	—	—
MOS(X) 5C	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

\*2 P168 Ref. Secondary Processed Products

### Ratings

Type	Power Rating	Resistance Range (Ω)			T.C.R. (×10 <sup>-6</sup> /K)	Max. Working Voltage	Max. Overload Voltage	Dielectric Withstanding Voltage	Taping&Q'ty/AMMO pack (pcs)				
		F:±1%(E24-E96)*3	G:±2%(E24)*3	J:±5%(E24)					T26A	T52A	T521A	T631A	
MOS1/2C	0.5W	10~47k	10~47k	10~47k	±300	E=√P×R(V)	600V	400V	2,000	2,000	—	—	
MOS1C	1W	10~68k	10~68k	10~100k				500V	—	2,000	—	—	
MOS2C	2W	10~100k	—					—	—	1,000	1,000	—	—
MOS3C	3W	—	10~100k	10~100k		E=√P×R(V)	E×2.5(V)	700V	—	—	500	1,000	—
MOS5C	5W							800V	—	—	—	—	—
MOSX1/2C	0.5W	1.0~9.1	0.22~9.1	0.1~9.1				400V	2,000	2,000	—	—	
MOSX1C	1W				500V	—	2,000	—	—				
MOSX2C	2W				—	1,000	1,000	—	—				
MOSX3C	3W				—	—	500	1,000	—				
MOSX5C	5W	—	—	—	800V	—	—	—	—				

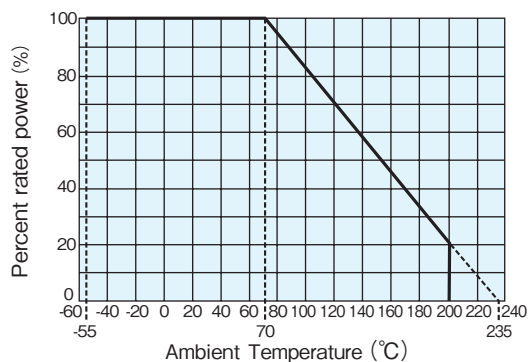
\*3 Please consult with us for resistance other than catalog specification (tol.F/G)

Rated Ambient Temperature : +70°C

Operating Temperature Range : -55°C ~ +200°C

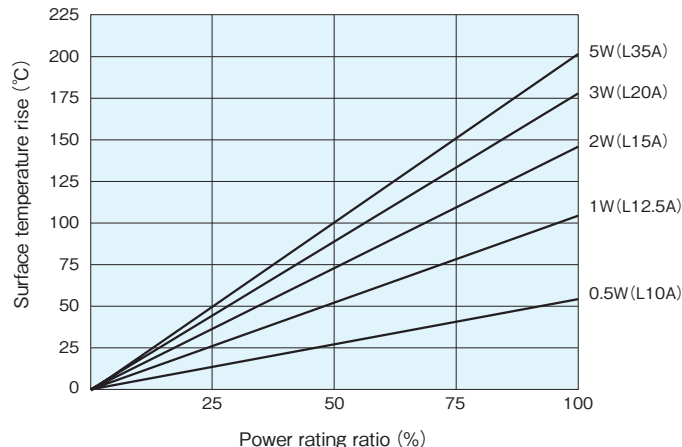
Rated voltage=√Power Rating×Resistance value or Max. working voltage, whichever is lower.

### Derating Curve



For resistors operated at an ambient temperature of 70°C or above, a power rating shall be derated in accordance with the above derating curve.

### Surface Temperature Rise



### Performance

Test Items	Performance Requirements $\Delta R \pm (\% + 0.05\Omega)$		Test Methods
	Limit	Typical	
Resistance	Within specified tolerance	—	Measuring points are 10mm±1mm from the end cap.
T.C.R.	Within specified T.C.R.	—	+25°C/+125°C
Overload (Short time)	± (2%+0.1Ω)	1	Rated voltage×2.5 for 5s
Resistance to soldering heat	1	0.5	260°C±5°C, 10s±1s
Terminal strength	No lead-coming off and loose terminals	—	Twist 360°, 5 times
Rapid change of temperature	1	0.5	-55°C (30min.) / +155°C (30min.) 5 cycles
Moisture resistance	± (5%+0.1Ω)	2.5	40°C±2°C, 90%~95%RH, 1000h 1.5h ON/0.5h OFF cycle
Endurance at 70°C	± (5%+0.1Ω)	2.5	70°C±2°C, 1000h 1.5h ON/0.5h OFF cycle
Resistance to solvent	No abnormality in appearance. Marking shall be easily legible	—	Ultrasonic washing with Isopropyl alcohol for 2 min. Power : 0.3W/cm², f : 28kHz, Temp : 35°C±5°C
Flame retardant	No evidence of flaming or self-flaming.	—	Flame test : The test flame shall be applied and removed for each 15 sec respectively to repeat the cycle 5 times. Overload flame retardant : Power (AC) corresponding to 2, 4, 8, 16 and 32 times the power rating shall be applied for each 1min. until disconnection occurs. However the applied voltage shall not exceed the value of 4 times the maximum operating voltage.

### Precautions for Use

- Coating color, marking and dimensions are different depending on the manufacturing base. Verify them on the delivery specification.
- Be careful to handle these resistors because outer coatings are comparatively weak to outer shock due to flameproof special coats. Please wash them to a minimum. No external force is given to the coating films until they are well dried because the coating films become weaker right after washing. The original strength will be returned after they are dried, so please pay attention not to apply any external force onto the coating film of resistors for 20 minutes after drying. Especially no PC boards shall be piled up.

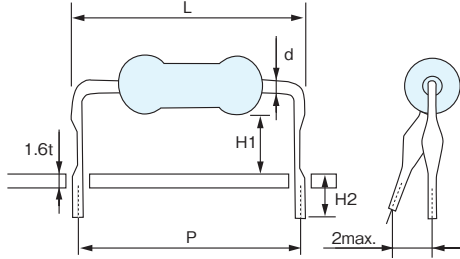
# POWER TYPE

## MOS Fixed Metal Oxide Film Resistors (Small type)

## MOSX Fixed Metal Film Resistors (Small type)

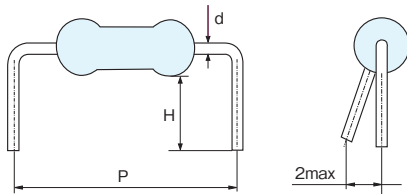
■ Secondary Processed Products (mm)

L Forming



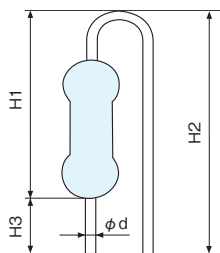
Type MOS MOSX	P±1	H <sub>1</sub> ±1	H <sub>2</sub> ±1	d (Nominal)	L max.	Substrate hole dia
1/2CL10A	10.0	5.3	4.0	0.6	17.5	φ0.8
1CL12.5A	12.5	7.0		0.8		φ1.0
1CL15A	15.0	6.5				
2CL15A		7.0				
2CL15F	4.5					
2CL20A	20.0	9.0				
2CL20D		4.8				
3CL20A		8.0				
3CL20C		10.0				
3CL20T	4.0					
3CL25A	25.0	7.0				
3CL30A	30.0	7.0				
5CL30A		8.5				
5CL35A	35.0	5.5				

M Forming



Type MOS MOSX	P±1	H±1	d (Nominal)	Substrate hole dia
1/2CM10C	10.0	3.5	0.6	φ0.8
1/2CM10F	10.0	5.0	0.6	
1CM12.5C	12.5	3.5	0.8	φ1.0
1CM12.5D	12.5	4.0	0.8	
1CM15F	15.0	5.0	0.8	
1CM15J	15.0	6.3	0.8	
1CM15S	15.0	11.0	0.8	
2CM15C	15.0	3.5	0.8	
2CM15E	15.0	4.5	0.8	
2CM16D	16.0	4.0	0.8	
2CM20D	20.0	4.0	0.8	
2CM20U	20.0	13.5	0.8	
3CM20E	20.0	4.6	0.8	
3CM26E	26.0	4.7	0.8	
5CM30U	30.0	13.0	0.8	

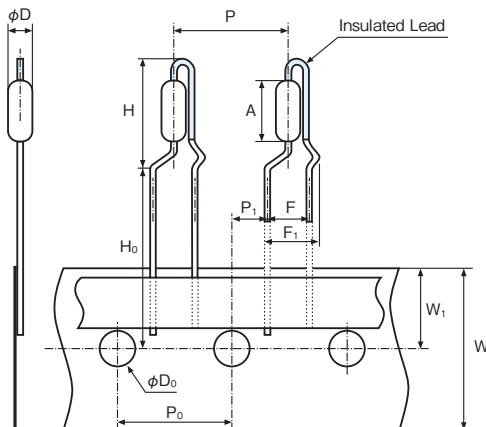
UCL Forming



Type MOS MOSX	H <sub>1</sub> ±1	H <sub>2</sub> ±1	H <sub>3</sub> ±1	d (Nominal)	Insertion pitch	Substrate hole dia
1CUCL	13.0	17.0max.	3.5	0.8	5.0	φ1.0
2CUCL	14.5	18.5max.	3.5			
3CUCL	20.0max.	22.0	4.0			

## ■ Secondary Processed Products (mm)

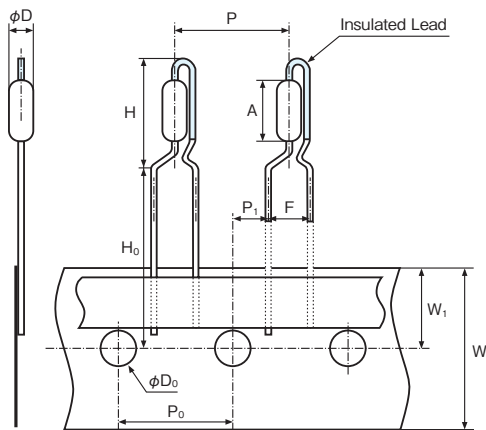
### VTF Radial Taping



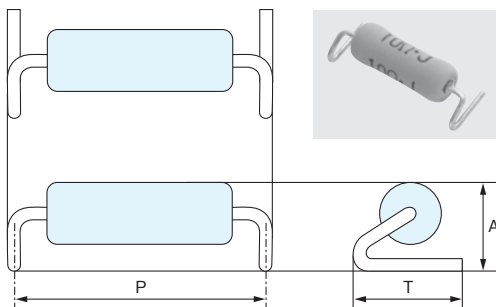
Breed	MOS/MOSX			
Rating	1/2C	1C	2C	2C
Type	VTP	VTP	VTP	VTF
A	6.2±0.5	9.0±1.0	12.0±1.0	12.0±1.0
φD	2.5±0.5	3.0±0.5	4.0±0.5	4.0±0.5
d(nominal)	0.6		0.65	0.8
F	5.0±0.5			
F <sub>1</sub>				7.3max.
H	13max.	16max.	22.5max.	22.5max.
H <sub>0</sub>	16+1.0/-0			
P	12.7±1.0			
P <sub>0</sub>	12.7±0.3			
P <sub>1</sub>	3.85±0.7			
W	18.0±0.5			
W <sub>1</sub>	9.0±0.5			
φD <sub>0</sub>	4.0±0.2			
Substrate hole dia	φ0.8			φ1.0

- The color of insulated lead : Green
- Insertion pitch : 5.0mm

### VTP Radial Taping



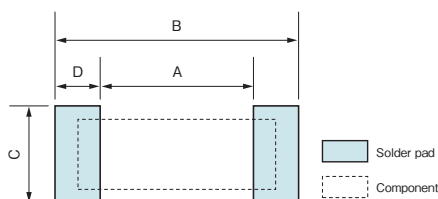
### N Forming



Breed	MOS/MOSX		
Rating	1C	2C	3C
Type	N14.5TEB	N17TEB	N20TEG
P±1	14.5	17.0	20.0
T±0.5	5.0	6.0	7.5±1.0
A±0.5	4.8	5.8	6.5
d(nominal)	0.8	0.8	0.8

- Need a dedicated nozzle for automatic mounting.
- Please inquire to us before use.

### Recommended Pad Dimensions



Breed	MOS/MOSX		
Rating	1C	2C	3C
Type	N14.5TEB	N17TEB	N20TEG
A	12.5	14.6	17.6
B	16.5	19.4	22.4
C	7.0	8.0	9.5
D	2.0	2.4	2.4

- Please refer to APPENDIX for the packaging specification.

Various lead forming shapes are available upon request. Please feel free to ask us.