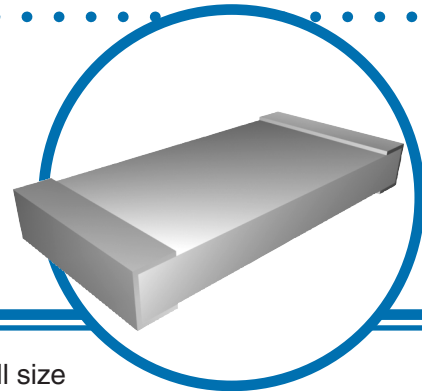


# Miniature Current Sense Surface Mount Chip Resistors



## LVC Series

- RoHS compliant
- Tolerances to  $\pm 1\%$
- Resistance range from  $0.01\Omega$  up to  $1\Omega$
- Available in 0402, 0603, 0805, 1206, 2010 and 2512 chip sizes



IRC's new LVC miniature surface mount chip resistors combine small size with precision tolerances for accurate current sense applications. Excellent power handling capability, low TCR, low inductance and resistance tolerances to  $\pm 1\%$  make the LVC series an ideal choice for disk drive, computer power supply, and battery pack applications.

## Electrical Data

Size	Power Rating at 70°C	Tolerance	Resistance Range*	Absolute TCR	Operating Temperature
0402	62.5mW	1%, 2%, 5%	50m $\Omega$ - 100m $\Omega$	$\pm 400$	-55°C to +155°C
			101 $\Omega$ - 500m $\Omega$	$\pm 300$	
			501m $\Omega$ - 1000m $\Omega$	$\pm 300$	
0603	100mW	1%, 2%, 5%	20m $\Omega$ - 50m $\Omega$	$\pm 600$	
			51m $\Omega$ - 100m $\Omega$	$\pm 400$	
			101m $\Omega$ - 500m $\Omega$	$\pm 300$	
0805	125mW	1%, 2%, 5%	501m $\Omega$ - 1000m $\Omega$	$\pm 200$	
			20m $\Omega$ - 50m $\Omega$	$\pm 600$	
			51m $\Omega$ - 100m $\Omega$	$\pm 400$	
1206	250mW	1%, 2%, 5%	101m $\Omega$ - 500m $\Omega$	$\pm 300$	
			501m $\Omega$ - 1000m $\Omega$	$\pm 200$	
			10m $\Omega$ - 20m $\Omega$	$\pm 600$	
2010	750mW	1%, 2%, 5%	21m $\Omega$ - 50m $\Omega$	$\pm 400$	
			51m $\Omega$ - 500m $\Omega$	$\pm 300$	
			501m $\Omega$ - 1000m $\Omega$	$\pm 200$	
2512	1000mW	1%, 2%, 5%	10m $\Omega$ - 20m $\Omega$	$\pm 600$	
			21m $\Omega$ - 50m $\Omega$	$\pm 400$	
			51m $\Omega$ - 500m $\Omega$	$\pm 300$	
			501m $\Omega$ - 1000m $\Omega$	$\pm 200$	

\*Standard Values E24 Preferred

### General Note

IRC reserves the right to make changes in product specification without notice or liability. All information is subject to IRC's own data and is considered accurate at time of going to print.

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A subsidiary of  
TT electronics plc  
LVC Series Issue July 2008

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## Environmental Performance Data

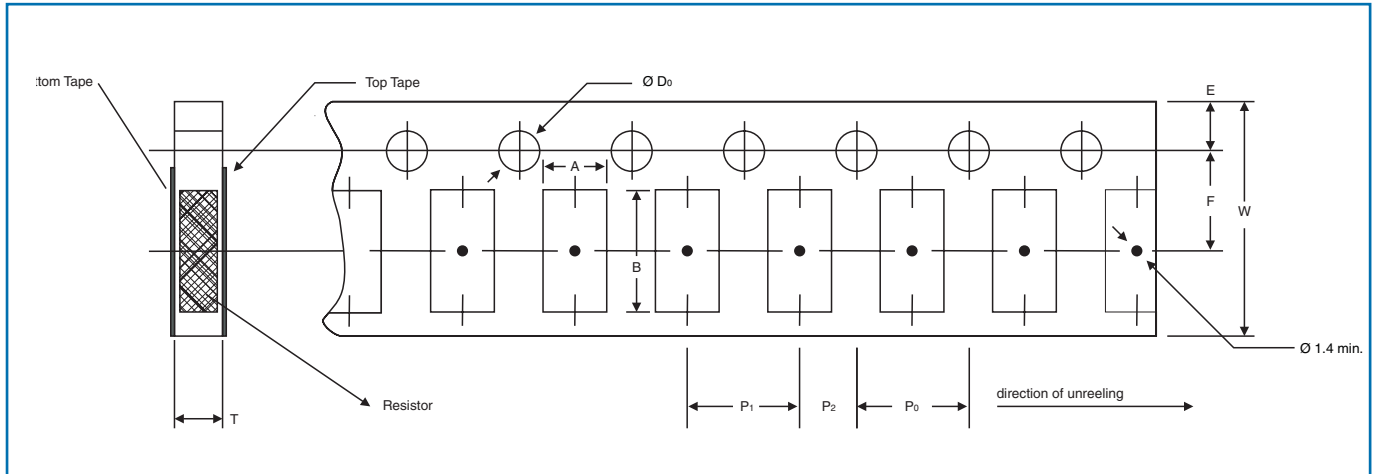
Environmental Test	Test Method	Typical Performance
Thermal Shock	MIL-STD-202 Method 107G Condition B, -55°C +150°C, 100 cycles	±0.5% + 1.0mΩ
Short Time Overload	6.25X Rated Power for 5 seconds	±0.5% + 0.5mΩ
High Temperature Exposure	100 hours @150°C	±0.5% + 0.5mΩ
Dielectric Withstanding Voltage	MIL-STD-202, Method 301 2.5X Rated Voltage, 1 minute	±0.25% + 0.5mΩ
Humidity (steady state)	MIL-STD-202 Method 103B 40°C, 90-95% RH, 1000 hours	±0.5% + 0.5mΩ
Load Life	1000 hours, Rated Power, 70°C 1.5 hours on, 30 minutes off	±1.0% + 0.5mΩ
Low Temperature Operation	1 hour -65°C followed by rated power for 45 min	±0.5% + 0.5mΩ
Resistance to Solder Heat	MIL-STD-202 Method 210 260°C, 10 seconds	±0.5% + 1.0mΩ
Insulation Resistance	MIL-STD-202 Method 302 100VDC, 1 minute	>1000 megohms
Solderability	MIL-STD-202 Method 208 245°C, 5 seconds	95% min Coverage

## Physical Data (mm)

	Chip Dimensions					IPC Recommended Landing Pad Dimensions			
	L	W	T	C	A	D	E	F	
<b>0402</b>	1.00 ±0.05	0.50 ±0.05	0.32 ±0.10	0.25 ±0.10	0.20 ±0.10	0.65	0.65	0.90	
<b>0603</b>	1.60 ±0.10	0.80 ±0.10	0.45 ±0.10	0.30 ±0.20	0.30 ±0.20	1.00	0.90	1.60	
<b>0805</b>	2.00 ±0.15	1.25 ±0.15	0.55 ±0.10	0.30 ±0.20	0.40 ±0.25	1.40	0.95	2.00	
<b>1206</b>	3.05 ±0.15	1.55 ±0.15	0.55 ±0.10	0.50 ±0.30	0.40 ±0.25	1.75	1.00	3.00	
<b>2010</b>	5.00 ±0.20	2.45 ±0.15	0.60 ±0.15	0.60 ±0.30	0.50 ±0.25	2.70	1.20	4.70	
<b>2512</b>	6.35 ±0.20	3.15 ±0.15	0.60 ±0.10	0.60 ±0.30	0.55 ±0.25	3.40	1.10	6.10	

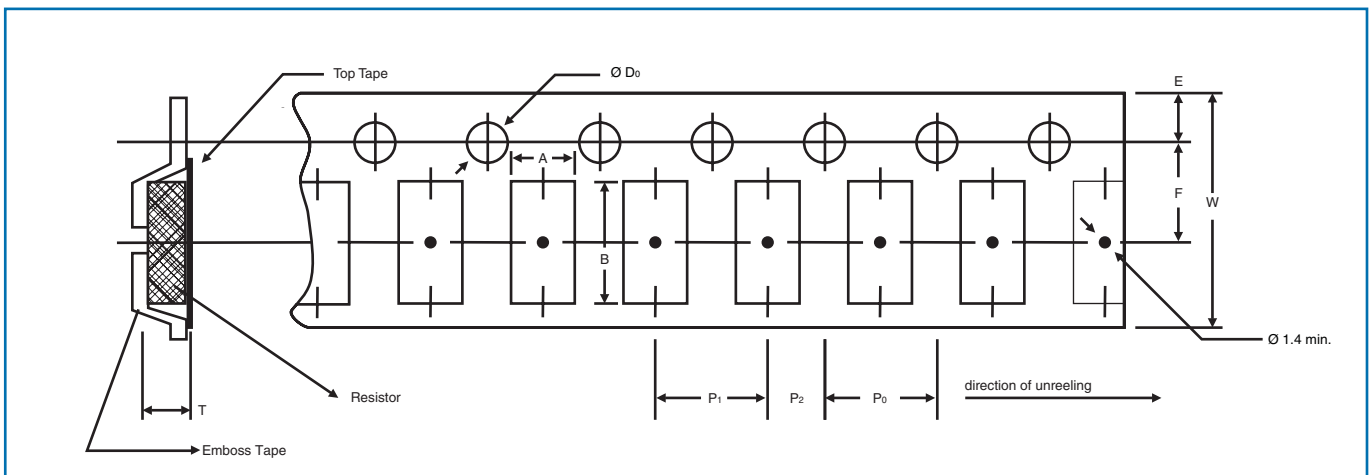
# Miniature Current Sense Surface Mount Chip Resistors

## Tape & Reel Packaging Data (mm)



	A	B	E	F	W	T	P <sub>0</sub>	P <sub>1</sub>	P <sub>2</sub>	ØD <sub>0</sub>	Qty/ Reel
0402	0.70±0.05	1.16±0.05	1.75 ±0.05	3.5 ±0.05	8.00 ±1.0	0.40 ±0.03	4.00 ±0.10	2.00±0.5	2.00±0.05	1.55±0.05	10k
0603	1.10 ±0.05	1.90 ±0.05	1.75 ±0.05	3.5 ±0.05	8.00 ±1.0	0.60 ±0.03	4.00 ±0.10	4.00±0.5	2.00±0.05	1.55±0.05	5k
0805	1.60 ±0.05	2.37 ±0.05	1.75 ±0.05	3.5 ±0.05	8.00 ±1.0	0.75 ±0.05	4.00 ±0.10	4.00±0.5	2.00±0.05	1.55±0.05	5k
1206	2.00±0.05	3.55±0.05	1.75±0.05	3.5±0.05	8.0±1.0	0.75±0.05	4.00 ±0.10	4.00±0.5	2.00±0.05	1.55±0.05	5k

## Emboss Plastic Tape Packaging Data (mm)

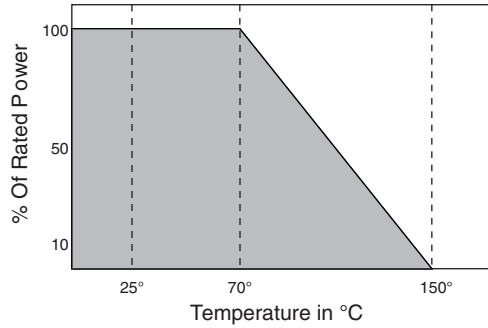


	A	B	E	F	W	T	P <sub>0</sub>	P <sub>1</sub>	P <sub>2</sub>	ØD <sub>0</sub>	Qty/ Reel
2010	2.85±0.10	5.45±0.10	1.75±0.10	5.5±0.05	12.0±0.10	1.00±0.20	4.00±0.05	4.00±0.10	2.00±0.05	1.50±0.10	4k
2512	3.40±0.10	6.65±0.10	1.75±0.10	5.5±0.05	12.0±0.10	1.00±0.20	4.00±0.05	4.00±0.10	2.00±0.05	1.50±0.10	4k

# Miniature Current Sense Surface Mount Chip Resistors



## Power Derating Data



## Ordering Data

Prefix ..... **LVC** - **LVC0805LF** - **R020** - **F**

Model .....  
LVC0402LF; LVC0603LF; LVC0805LF  
LVC1206LF; LVC2010LF; LVC2512LF

Resistance Code .....  
4-Digit resistance code. Ex: R050 = 0.050Ω; 1R00 = 1Ω

Tolerance Code .....  
F = ±1%; G = ±2%; J = ±5%

For additional information or to discuss your specific requirements,  
please contact our Applications Team using the contact details below.

## Marking Information

0402 chips will be marked with 3-digit resistance code. Ex: 1R0 = 1Ω, R10 = 0.1Ω, R01 = 0.01Ω  
All other sizes will have 4-digit marking