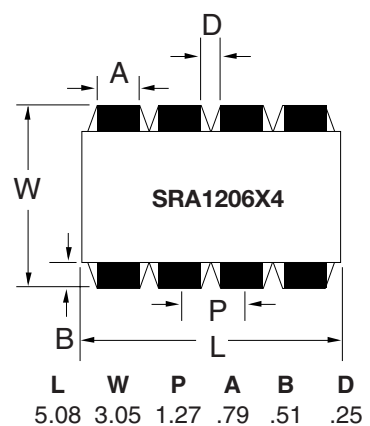
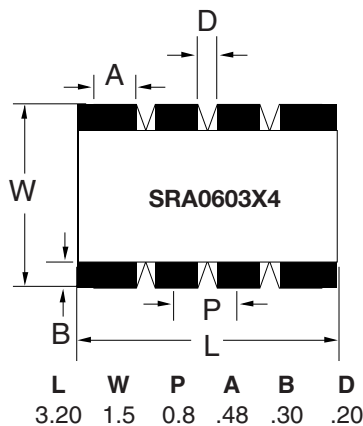
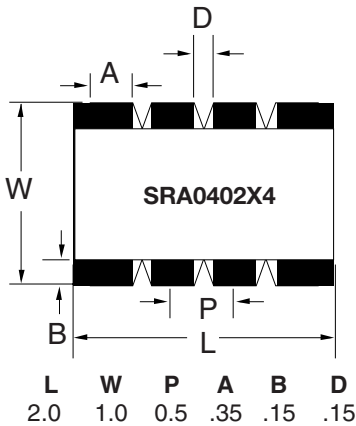




DUMMY COMPONENT ORDERING INFORMATION

INDIVIDUAL CHIP SIZE	LEAD INFO		TAPE INFO		4" (100mm) Tape & Reel Part Number		7" (180mm) Tape & Reel Part Number	
	NBR	PITCH	WIDTH	PITCH	XM1	Q _{TY}	XD1	Q _{TY}
0402 x 4	8	0.5mm	8mm	2mm	-		SRA0402X4P7A	10,000
0603 x 4	8	0.8mm	8mm	4mm	SRA0603X4P4A	500	SRA0603X4P7A	5000
0603 x 8	16	0.8mm	12mm	4mm	-		SRA0603X8E7A	4000
0805 x 4	8	1.27mm	12mm	4mm	-		SRA0805X4P7A	4000
0805 x 8	16	1.27mm	16mm	4mm	-		SRA0805X8E7A	4000
1206 x 4	8	1.27mm	12mm	8mm	SRA1206X4E4A	250	SRA1206X4E7A	2000
1206 x 8	16	1.27mm	16mm	8mm	-		SRA1206X8E7A	2000



Dimensions in millimeter (mm).

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Resistor arrays are efficient and economical to place. The 0402 x 4 is similar in size to a single 0805 chip. The 0603 x 4 is similar in size to a single 1206 chip. The 1206 x 4 is similar in size to a single 2012 chip.



INDUCTOR AND FERRITE BEAD



MOLDED CASE



MULTILAYER INDUCTOR & FERRITE BEAD

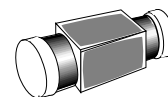
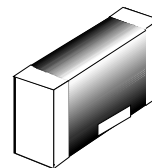
DUMMY COMPONENT ORDERING INFORMATION

CHIP SIZE		MAX HEIGHT	TAPE INFO		4" (100mm) Tape & Reel Part Number		7" (180mm) Tape & Reel Part Number		13" (330mm) Tape & Reel Part Number	
INCH	METRIC		WIDTH	PITCH	XM1	QTY	XD1	QTY	XD1	QTY
MULTILAYER INDUCTOR										
0603	1608	0.8mm	8mm	4mm	SI0603E4A	250	SI0603E7A	4000	SI0603E13A	10,000
0805	2012	1.25mm	8mm	4mm	SI0805E4A	250	SI0805E7A	4000	SI0805E13A	10,000
1206	3216	1.60mm	8mm	4mm	SI1206E4A	250	SI1206E7A	2000	SI1206E13A	10,000
MOLDED CASE INDUCTOR										
1008	2520	1.8mm	8mm	4mm	SI1008E4A	250	SI1008E7A	2000	SI1008E13A	7500
1210	3225	2.2mm	8mm	4mm	SI1210E4A	250	SI1210E7A	2000	SI1210E13A	7500
1812	4516	3.2mm	12mm	8mm	SI1812E4A	100	SI1812E7A	500	SI1812E13A	2000
FERRITE BEAD										
0603	1608	0.8mm	8mm	4mm	SB0603E4A	250	SB0603E7A	4000	SB0603E13A	10,000
0805	2012	0.9mm	8mm	4mm	SB0805E4A	250	SB0805E7A	4000	SB0805E13A	10,000
1206	3216	1.1mm	8mm	4mm	SB1206E4A	250	SB1206E7A	2000	SB1206E13A	8000
1210	3225	1.3mm	8mm	4mm	SB1210E4A	250	SB1210E7A	2000	SB1210E13A	8000
1812	4532	1.5mm	12mm	8mm	SB1812E4A	100	SB1812E7A	1000	SB1812E13A	4000

INFO

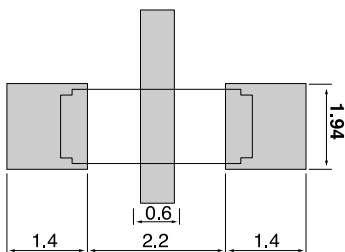
Inductors and ferrite beads are available in a variety of package types and sizes. Molded devices are useful for precision placement where vision processes are required. Multilayer devices handle and place the same as chip capacitors. Nomenclature: The chip size code approximates the LxW footprint dimensions. 13 - inch reels available on special order.

EMI FILTER EDGE MOUNT DEVICE 3-TERMINAL

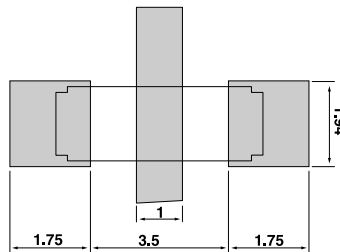


DUMMY COMPONENT ORDERING INFORMATION

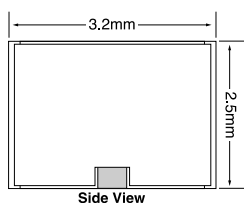
FIG	CHIP SIZE		DIMENSIONS METRIC			TAPING INFO		7" (180mm) Tape & Reel Part Number		13" (330mm) Tape & Reel Part Number	
	INCH	METRIC	L	W	H	WIDTH	PITCH	XD1	QTY	XD1	QTY
1	1210	3225	3.2 x 1.8 x 2.5mm			12mm	4mm	ACF321825E7A	1000	-	-
2	1806	4516	4.5 x 1.0 x 1.6mm			12mm	4mm	NFM41E7A	4000	-	-
3	1812	4532	4.5 x 1.8 x 3.2mm			12mm	4mm			ACF451832E13A	4000
4	2707	MELF	6.8 L x 1.6mm Dia.			12mm	4mm	-	-	NFM61E13A	8000



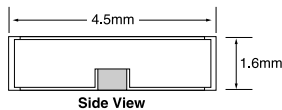
Recommended PC Board Dimensions in mm



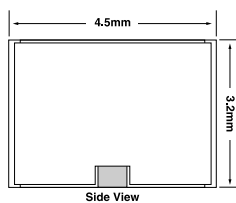
Recommended PC Board Dimensions in mm



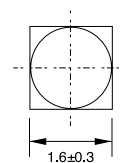
Side View



Side View



Side View



1.6±0.3

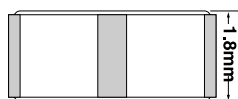


Fig. 1

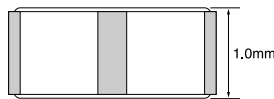


Fig. 2

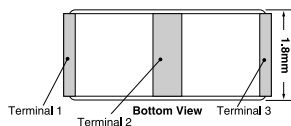


Fig. 3

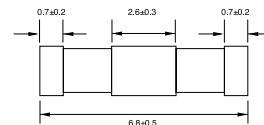


Fig. 4

EMI filters are 3-terminal devices contain a multilayer ceramic capacitor and two ferrite chip beads. They are typically mounted vertically on edge to allow higher board densities.

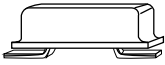


FIG. 1
METAL

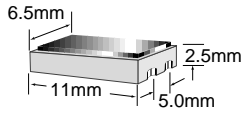


FIG. 2
CERAMIC

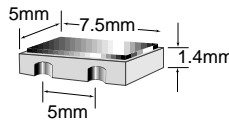


FIG. 3
CERAMIC

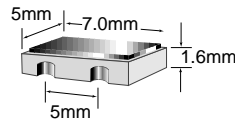


FIG. 4
CERAMIC

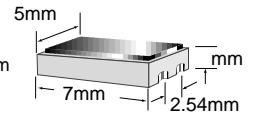


FIG. 5
CERAMIC

DUMMY COMPONENT ORDERING INFORMATION

FIG	CASE	FOOTPRINT METRIC	TAPE INFO		7" (180mm) Tape & Reel Part Number		13" (330mm) Tape & Reel Part Number	
			WIDTH	PITCH	XM1	QTY	XD1	QTY
1	Metal	11.1 x 4.6mm	24mm	12mm	-	-	SM49E11P	1000
2	Ceramic	11.0 x 6.5mm	24mm	12mm	-	-	LCN11x6.5E10A	1000
3	Ceramic	7.5 x 5.0mm	16mm	8mm	-	-	LCC7.5x5.0E10A	2000
4	Ceramic	7.0 x 5.0mm	16mm	8mm	-	-	LCC7.0x5.0E10A	1000
5	Ceramic	7.0 x 5.0mm	16mm	8mm	-	-	LCN7.0x5.0E10A	3000
6	Molded	8.7 x 3.7mm	16mm	8mm	-	-	SX3512E13A	2000
7	Molded	9.0 x 4.2mm	16mm	8mm	SXE3516E7A	100	SXE3516E13A	2000
8	Molded	10.4 x 4.2mm	16mm	8mm	-	-	SXE4016E13A	2000
9	Molded	10.2 x 5.3mm	16mm	8mm	-	-	SXPLCC4020E13A	1000
10	Molded	11.6 x 4.2mm	24mm	8mm	-	-	SX4516E13A	1000
11	Molded	13.2 x 5.0mm	24mm	8mm	SX5020E7A	100	SX5020E13A	1000
12	Molded	14.0 x 8.7mm	24mm	12mm	-	-	SXPLCC28R-E13A	250

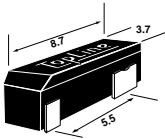


FIG. 6

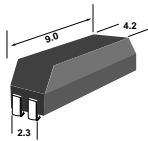


FIG. 7

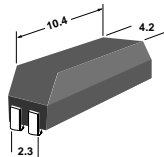


FIG. 8

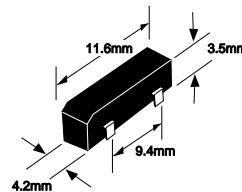


FIG. 10

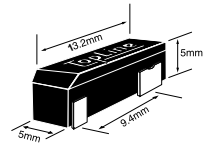


FIG. 11
SX5020

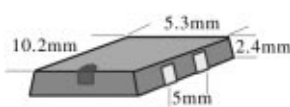


FIG. 9

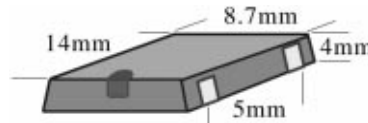


FIG. 12

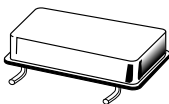


Fig 1
FULL SIZE GULL WING

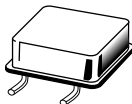


Fig 2
HALF SIZE GULL WING



Fig 3
FULL SIZE THROUGHHOLE

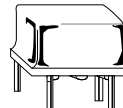


Fig 4
HALF SIZE THROUGHHOLE

DUMMY COMPONENT ORDERING INFORMATION

FIG	CASE	FOOTPRINT METRIC	TAPE INFO		Tube Part Number		13" (330mm) Tape & Reel Part Number	
			WIDTH	PITCH	XR1	QTY	XR1	QTY
Gull-wing Lead								
1	Full	13.0 x 20.7mm	32mm	24mm	LX0SMD-M	25	LX0SMD-E13A	400
2	Half	12.5 x 12.5mm	32mm	24mm	LX1/2SMD-M	40	LX1/2SMD-E13A	Call
Throughhole Lead								
3	Full	13.0 x 20.7mm	32mm	24mm	LX0M	20-25	LX0E13A	400
4	Half	12.5 x 12.5mm	32mm	24mm	LX1/2M	40	LX1/2E13A	Call

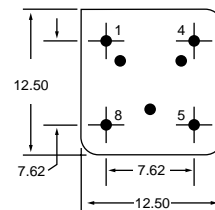
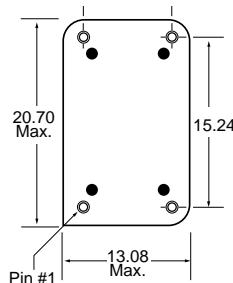
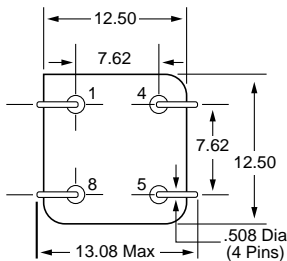
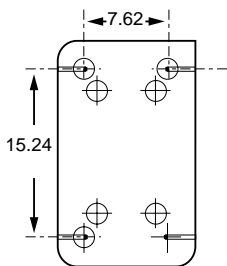
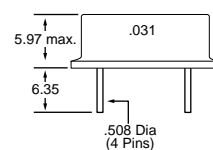
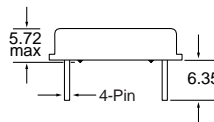
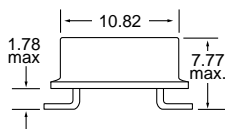
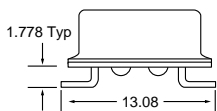


Fig 1

Fig 2

Fig 3

Fig 4

TRIMMER (POTENTIOMETER)



Fig 1

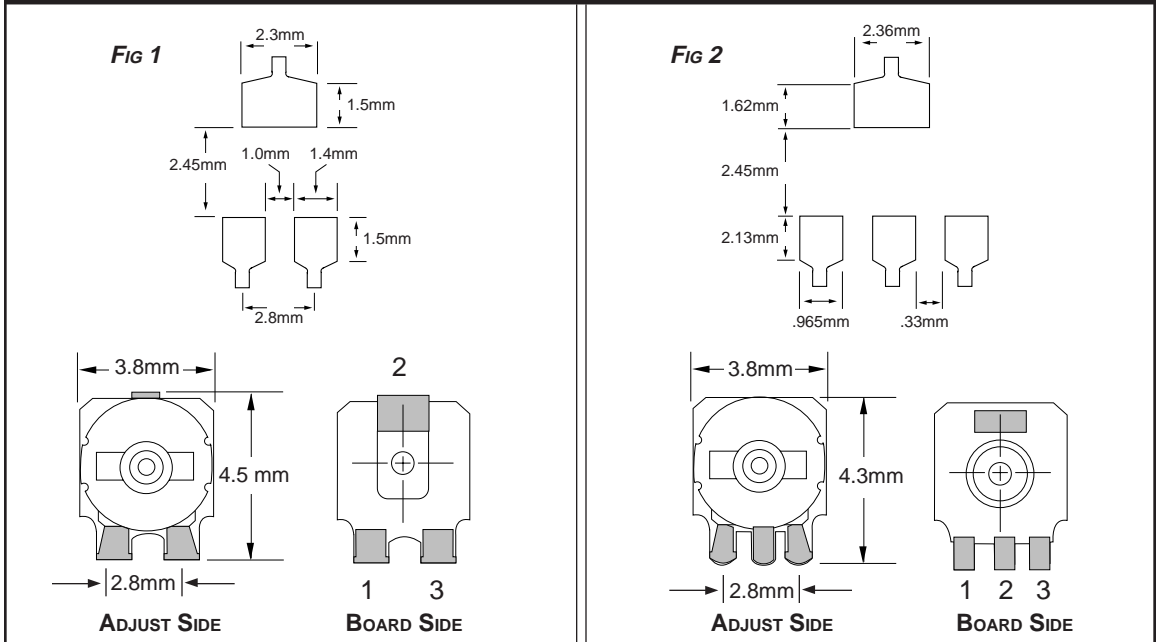


Fig 2

DUMMY COMPONENT ORDERING INFORMATION

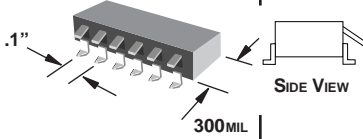
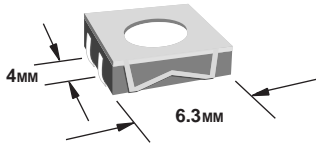
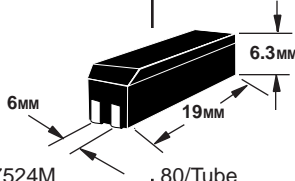
FIG	CHIP SIZE		TAPE INFO		4" (100mm) Tape & Reel Part Number		7" (180mm) Tape & Reel Part Number	
	INCH	METRIC	WIDTH	PITCH	XM1	QTY	XD1	QTY
1	1815	4.5 x 3.8mm	12mm	8mm	SP1815E4A-CVR42	100	SP1815E7A-CVR42	1000
2	1815	4.5 x 3.8mm	12mm	8mm	SP1815E4A-CVR43	100	SP1815E7A-CVR43	1000

PC BOARD PATTERN



I Trimmer resistors are commonly called potentiometers or pots. An adjustment is used to vary the resistance from zero ohm to full range. Available in many sizes. Send print for quotation on other sizes.

DUMMY COMPONENT ORDERING INFORMATION

LEAD STYLE	LEAD STYLE	SIZE L x W x H	TAPE WIDTH	INFO PITCH	XD1 PART NUMBER	PACK QTY
DIP SWITCH	Gull	6 position	24mm	16mm	 DIPSWITCH6-E13A	400/reel
TACT SWITCH	J-Lead	.25" Sq. (6.36mm)	12mm	8mm	 TACTSWITCH-6.3E7A	500/reel
Reed Relay	J-Lead	.75" x .24" x .25"	-	-	 RELAY7524M	80/Tube

I TopLine supplies a variety of dummy switches and relays on special order. Please fax your print or provide a complete description for a quotation.

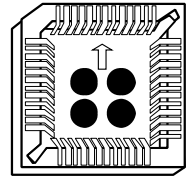
DUMMY COMPONENT ORDERING INFORMATION

LEAD STYLE	DESCRIPTION	SIZE L x W x H	TAPE WIDTH	INFO PITCH	XD1	
					PART NUMBER	PACK QTY
COAX CONNECTOR J-Lead	7524	4.5mm x 3.8mm	12mm	8mm	COAX1815E7A	1000/Reel
PCB CONNECTOR 4 - Pins 16 - Pins 20 - Pins	1.0mm pitch 0.5mm pitch 0.5mm pitch	3.5mm x 8mm 4.5mm x 12mm 4.5mm x 15mm	24mm 24mm 24mm		CONN4P-1.0MM-E13A CONN16P-0.5MM-E13A CONN20P-0.5MM-E13A	1000/Reel 1000/Reel 1000/Reel





PLCC Socket SMD TYPE



DUMMY COMPONENT ORDERING INFORMATION

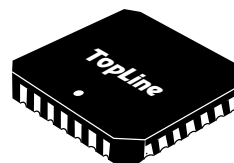
NBR LEADS	BODY SIZE INCHES	TAPE INFO		Tube Part Number		13" (330mm) Tape & Reel Part Number	
		WIDTH	PITCH	XP1	QTY	XP1	QTY
20	.60" sq.	24mm	24mm	SOCKETPLCC20M	37	SOCKETPLCC20E13A	500
28	.70" sq.	32mm	24mm	SOCKETPLCC28M	32	SOCKETPLCC28E13A	400
32	.70" x .80"	32mm	24mm	SOCKETPLCC32M	28	SOCKETPLCC32E13A	400
44	.90" sq.	44mm	32mm	SOCKETPLCC44M	21-25	SOCKETPLCC44E13A	250
52	1.0" sq.	44mm	32mm	SOCKETPLCC52M	25	SOCKETPLCC52E13A	250
68	1.2" sq.	44mm	36mm	SOCKETPLCC68M	18	SOCKETPLCC68E13A	250
84	1.4" sq.	56mm	40mm	SOCKETPLCC84M	16	SOCKETPLCC84E13A	100

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Part numbers shown are sockets without polarizing peg. For polarizing peg, add - P to end of part.
Tube and reel quantities may vary. Please contact TopLine for latest and most accurate package quantities.



LCC LEADLESS CHIP CARRIER



DUMMY COMPONENT ORDERING INFORMATION

NBR LEADS	LEAD PITCH	CASE SIZES INCHES	Bulk Part Number	
				XL1
16	50 mils	.30" SQ	LCC16B50SQ.30	
16	40 mils	.25" SQ	LCC16B40SQ.25	
16	50 mils	.25" SQ	LCC16B50SQ.25	
16	50 mils	.28" x .35"	LCC16B50R.28x.35	
18	50 mils	.25" SQ	LCC18B50SQ.25	
18	50 mils	.28" x .35"	LCC18B50R.28x.35	
18	50 mils	.28" x .45"	LCC18B50R.28x.45	
20	50 mils	.35" SQ	LCC20B50SQ.35	
20	50 mils	.29" x .42"	LCC20B50R.29x.42	
24	40 mils	.35" SQ	LCC24B40SQ.35	
24	50 mils	.33" SQ	LCC24B50SQ.33	
24	50 mils	.40" SQ	LCC24B50SQ.40	
28	50 mils	.45" SQ	LCC28B50SQ.45	
28	50 mils	.35" x .55"	LCC28B50SQ.35x.55	
32	40 mils	.42" SQ	LCC32B40SQ.42	
32	50 mils	.45" x .55"	LCC32B50R.45x.55	
36	40 mils	.48" SQ	LCC36B40SQ.48	
36	50 mils	.55" SQ	LCC36B50SQ.55	
40	40 mils	.48" SQ	LCC40B40SQ.48	
44	50 mils	.65" SQ	LCC44B50SQ.65	
48	40 mils	.56" SQ	LCC48B40SQ.56	
52	50 mils	.75" SQ	LCC52B50SQ.75	
64	40 mils	.72" SQ	LCC64B40SQ.72	
68	50 mils	.95" SQ	LCC68B50SQ.95	
84	40 mils	.92" SQ	LCC84B40SQ.92	
84	50 mils	1.15" SQ	LCC84B50SQ1.15	

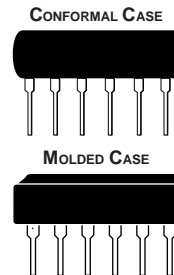
PART NUMBER

PACKAGING	PACKAGING CODE	OPTIONS	PART NBR SUFFIX
Bulk	B	With Lid	Blank
Tube	M	Without Lid	-N
Tray	T	Gold Leads	Blank
		Solder Coat	-SC


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SIP - SINGLE INLINE RESISTOR NETWORK



DUMMY COMPONENT ORDERING INFORMATION

NBR LEADS	PROFILE	CASE SIZE		 Bulk Part Number	XR1	Tube Part Number	XR1
		HEIGHT	LENGTH				
CONFORMAL COATED							
4	Low	.2" (5mm)	.4"	RS4	200	RS4M	56
6			.6"	RS6	200	RS6M	38
8			.8"	RS8	200	RS8M	28
10			1.0"	RS10	200	RS10M	22
MOLDED CASE							
4	Low	.2" (5mm)	.4"	RSM4	100	RSM4M	56
6			.6"	RSM6	100	RSM6M	38
8			.8"	RSM8	100	RSM8M	28
10			1.0"	RSM10	100	RSM10M	22
MOLDED CASE							
6	Medium	.25" (6.3mm)	.6"	RSMP6	100	RSMP6M	38
8			.8"	RSMP8	100	RSMP8M	28
10			1.0"	RSMP10	100	RSMP10M	22
MOLDED CASE							
6	High	.35" (8.9mm)	.6"	RSMH6	100	RSMH6M	38
8			.8"	RSMH8	100	RSMH8M	28
10			1.0"	RSMH10	100	RSMH10M	22

PART NUMBER

PACKAGING OPTIONS	SUFFIX CODE
Bulk	Blank
Tube Single Inline	M
Tube Side by Side	MS
Ammo	-A
Tape & Reel	-T

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Other Lead Counts Available on Special Order: 5, 7, 9 and 12.



CTREEL EMPTY CARRIER TAPE FOR DRY RUNS



DUMMY COMPONENT ORDERING INFORMATION

TAPE INFO		TAPE MATERIAL	TYPICAL CAVITY SIZE	 Tape & Reel Part Number <small>XM1</small>	NUMBER CAVITIES
WIDTH	PITCH				
7" REEL DIAMETER					
8mm	2mm	Paper	0402 Chip	CTREEL7x8mm-P2P	5000
8mm	4mm	Paper	0805 Chip	CTREEL7x8mm-P4P	5000
8mm	4mm	Plastic	0805 Chip	CTREEL7x8mm-P4E	4000
12mm	4mm	Plastic	2010 Chip, MELF, SM1	CTREEL7x12mm-P4	4000
12mm	8mm	Plastic	1812 Chip, Tant-C, SO8	CTREEL7x12mm-P8	1000
16mm	4mm	Plastic	8x0805 R-Array	CTREEL7x16mm-P4	4000
16mm	8mm	Plastic	SO14, SO16	CTREEL7x16mm-P8	500
13" REEL DIAMETER					
8mm	4mm	Paper	0805 Chip	CTREEL13x8mm-P4P	10,000
8mm	4mm	Plastic	0805 Chip	CTREEL13x8mm-P4E	10,000
12mm	4mm	Plastic	2010 Chip, MELF, SM1	CTREEL13x12mm-P4	10,000
12mm	8mm	Plastic	1812 Chip, Tant-C, SO8	CTREEL13x12mm-P8	2500
16mm	4mm	Plastic	8x0805 R-Array	CTREEL13x16mm-P4	2500
16mm	8mm	Plastic	SO14, SO16	CTREEL13x16mm-P8	2500
16mm	12mm	Plastic	SOL16	CTREEL13x16mm-P12	1000
24mm	4mm	Plastic	R-Network	CTREEL13x24mm-P4	1000
24mm	8mm	Plastic	Ø4mm Al-Cap, Crystal	CTREEL13x24mm-P8	1000
24mm	12mm	Plastic	SOM16, SOL20	CTREEL13x24mm-P12	1000
24mm	16mm	Plastic	PLCC28, PLCC32	CTREEL13x24mm-P16	500
24mm	24mm	Plastic	TQFP100	CTREEL13x24mm-P24	500
32mm	16mm	Plastic	TSOP32-T1	CTREEL13x32mm-P16	500
32mm	24mm	Plastic	PLCC44	CTREEL13x32mm-P24	500
32mm	32mm	Plastic	BGA121, BGA169	CTREEL13x32mm-P32	250
44mm	16mm	Plastic	SOL40	CTREEL13x44mm-P16	500
44mm	24mm	Plastic	TQFP 14 x 20	CTREEL13x44mm-P24	250
44mm	32mm	Plastic	PLCC68	CTREEL13x44mm-P32	250
44mm	40mm	Plastic	QFP28X28	CTREEL13x44mm-P40	200
56mm	40mm	Plastic	SOCKET PLCC84	CTREEL13x56mm-P40	100

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CTreels are a low cost way to perform dry runs without components. Includes sealed cover tape.



SAMPLE DISPLAY BOARDS FOR SHOW & TELL

**Set of 9
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Display boards make an excellent visual reference. Everything you need is represented on nine (7" x 8") display boards. Wall mount with velcro. Components are mounted on yellow card stock in a clear acrylic case. Order individually or set of 9 boards: Order #970000.

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SAMPLE DISPLAY BOARDS FOR SHOW & TELL



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PLCC J-Lead

PLCC 18 PLCC 20 PLCC 28

PLCC 32 PLCC 44 PLCC 52

PLCC 68 PLCC 84 SOCKET

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Tantalum Capacitor

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Ferrite & Filter

Resistor Network

Inductor

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Dummy Components

SOIC & TSOP

TSOP Type 1
Pitch = .5mm (19.7mil)

TSOP Type 2

TSSOP
Pitch = .65mm

SSOP Shrink
Pitch .65mm

SOIC Small Outline IC

SO 156mil SOL 300mil SOLJ 300mil J-Lead

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TopLine™
Dummy Components

Ball Grid Array

DP4970012A

1.5mm BGA 1.27mm BGA 1mm BGA

1.27mm CBGA Ceramic

CSP
Chip Scale Package

Flip Chip

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NOT SHOWN 970008
THROUGH-THOLE SEMICONDUCTOR