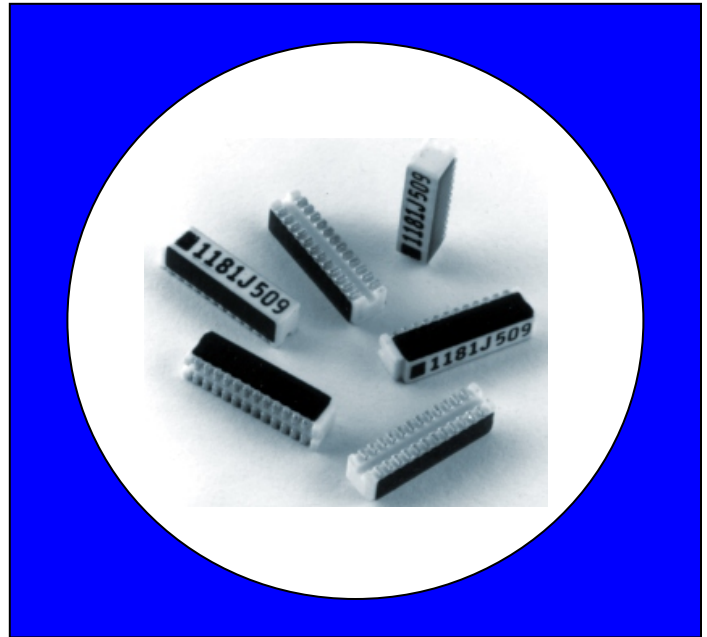


# Technical Data

## Features

- High Density Packaging
- Low Profile
- Inputs/Outputs Available:
  - Single Row Terminations (SRT) – 8, 9, 10, 12
  - Dual Row Terminations (DRT) – 16, 18, 20, 24
- Nickel Barrier Solder-Coated Pads
- Designed For Visual Inspection of Solder Joints
- Designed For Board Cleaning
- Application Specific Circuits Are Available
- Compatible With Reflow Solder Process
- RoHS Compliant



### Resistance Tolerance:

Standard:  $\pm 2\%$  or  $0.5\Omega$  (whichever is greater)  
 Special:  $\pm 1\%$  or  $0.3\Omega$  (whichever is greater)

### Resistance Range:

Standard:  $10\Omega$  to  $1\text{ Meg}\Omega$

### Temperature Coefficient:

Standard:  $\pm 200\text{PPM}/^\circ\text{C}$

### Maximum Operating Voltage:

25V not to exceed rated power

### Operating Temperature Range:

$-55^\circ\text{C}$  to  $+125^\circ\text{C}$

### Power Rating (Total Network Power):

Number of inputs/outputs (watts)

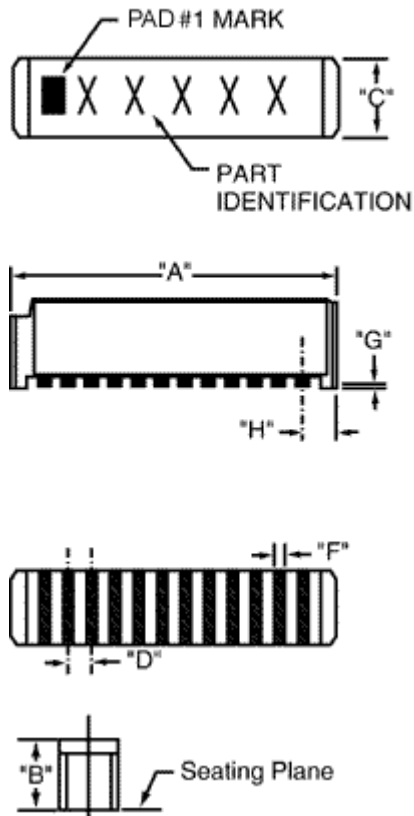
SRT	8	9	10	12				
DRT					16	18	20	24
@25°C	0.6	0.64	0.68	0.82	0.6	0.64	0.68	0.82
@70°C	0.4	0.43	0.45	0.55	0.4	0.43	0.45	0.55

### Maximum Resistor Power:

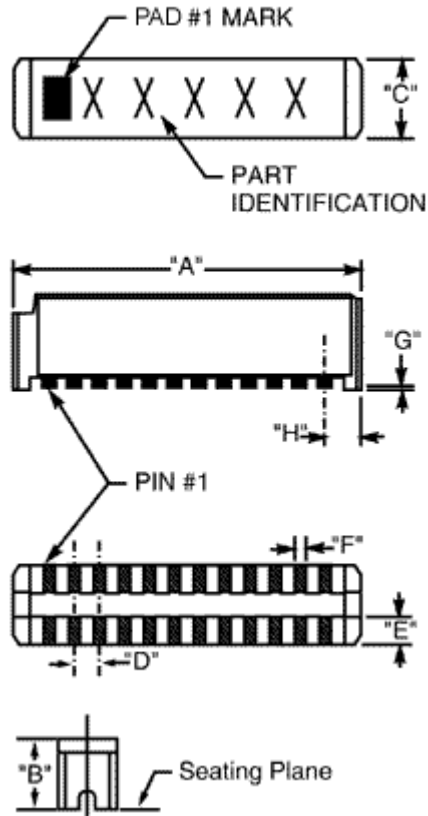
(Not to Exceed Total Network Power)

	Bussed & Dual Terminator Schematic	Isolated Schematic
@25°C	0.06w	0.12w
@70°C	0.04w	0.08w

### Single Row Termination (SRT)



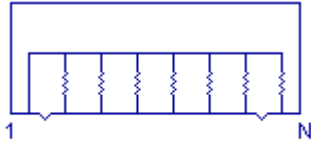
### Dual Row Termination (DRT)



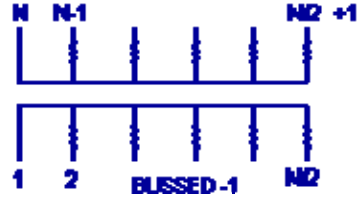
Dim.	mm	In.
B	2.41 ±0.12	0.095 ±0.005
C	2.03 ±0.12	0.080 ±0.005
D	0.64 ±0.12	0.025 ±0.005
E	0.71 ±0.12	0.028 ±0.005
F	0.33 ±0.08	0.013 ±0.003
G	0.08 ±0.05	0.003 ±0.002
H	0.89 Ref.	0.035 Ref.

Terminations	"A" Dimension	
	mm ±0.12	In. ±0.005
8	6.22	0.245
9	6.86	0.27
10	7.49	0.295
12	8.76	0.345
16	6.22	0.245
18	6.86	0.27
20	7.49	0.295
24	8.76	0.345

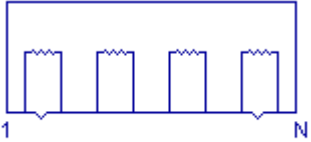
## Types of Circuits



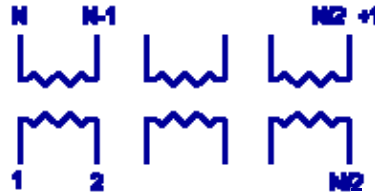
**Bussed SRT Schematic 1**



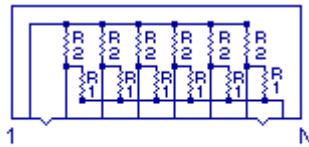
**Bussed DRT Schematic 1**



**Isolated SRT Schematic 3**  
(Not Available in 9 Pad)



**Isolated DRT Schematic 3**  
(Not Available in 18 Pad)



**Dual Terminator SRT Schematic 5**  
(Not Available in DRT)

## Dual Terminator Overview

Standard CTS Dual Terminator products contain (2N-2) resistors of two different values with each resistor value connected to a common buss. The part number includes the EIA Code value of the Thevenin equivalent resistances of R1 and R2. The Thevenin equivalent resistance is calculated in the following way: The suffix letter relates only to the sequence of variations that equal the same equivalent resistance. Reference chart.

$$R_{eq} = R_1 R_2 / (R_1 + R_2)$$

Examples:			
753095131A	R1=220 Ohms	R2=330 Ohms	Req=132 Ohms
753095191A	R1=330 Ohms	R2=470 Ohms	Req=194 Ohms
753095131C	R1=180 Ohms	R2=470 Ohms	Req=130 Ohms

Pin #1 is common to R2 and Pin N is common to R.

## Dual Terminator Resistor Values

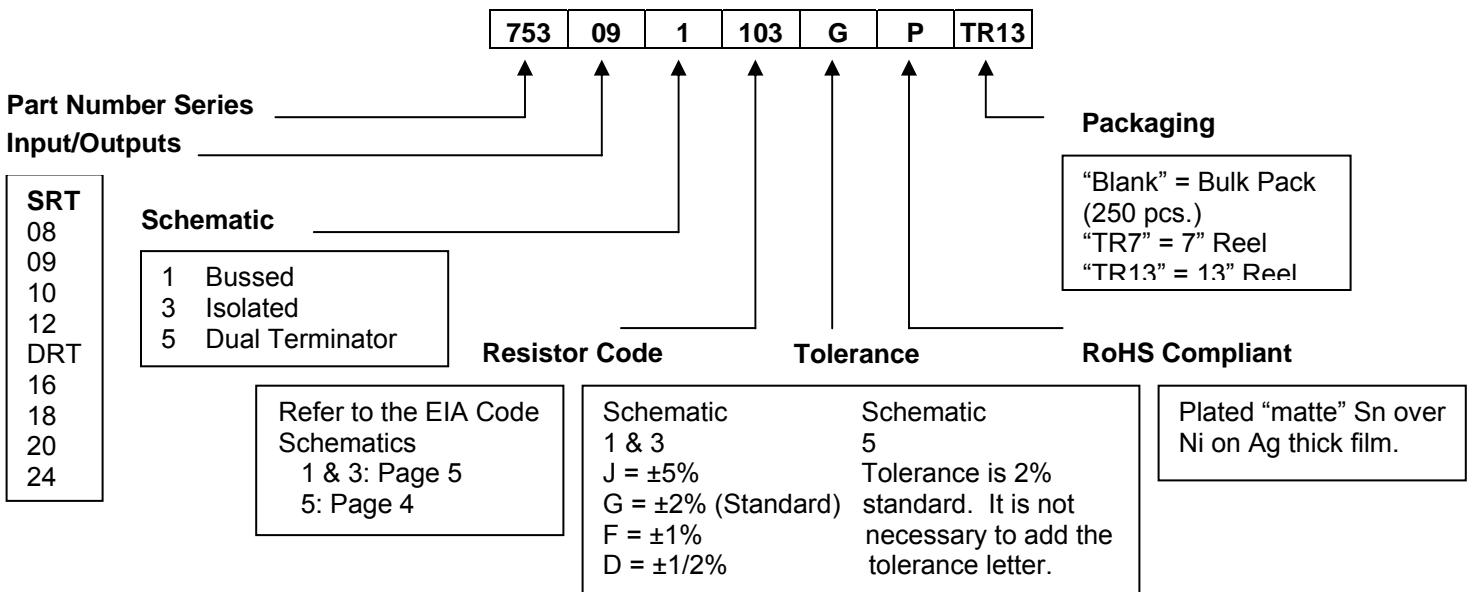
R1	R2	Thevenin Equivalent	CTS Code	R1	R2	Thevenin Equivalent	CTS Code
Ohms				Ohms			
25	50	17 ohm	150A	270	180	108 ohm	111C
30	50	19 ohm	190A	271	131	88 ohm	880A
30	620	29 ohm	290A	330	470	194 ohm	191A
33	4.7K	33 ohm	330A	330	680	222 ohm	221A
36	620	34 ohm	340A	330	390	179 ohm	181A
43	620	40 ohm	400A	330	220	132 ohm	131D
68	189	50 ohm	500B	330	330	165 ohm	171B
75	620	67 ohm	670A	360	720	240 ohm	241B
80	220	59 ohm	590A	360	600	225 ohm	231A
81	130	50 ohm	500A	390	620	239 ohm	241A
81	2.2K	78 ohm	780A	470	1K	320 ohm	321A
100	200	67 ohm	670B	470	680	278 ohm	281A
100	430	81 ohm	810A	470	940	313 ohm	311A
100	150	60 ohm	600A	500	500	250 ohm	251A
106	169	65 ohm	650A	560	910	347 ohm	351A
110	220	73 ohm	730A	560	1K	359 ohm	361A
118	178	71 ohm	710A	680	1K	405 ohm	401A
120	200	75 ohm	750B	750	750	375 ohm	381A
120	180	72 ohm	720A	750	2.3K	566 ohm	571A
120	120	60 ohm	600B	1K	3.3K	767 ohm	771A
150	150	75 ohm	750A	1K	2K	667 ohm	671A
160	260	99 ohm	990A	1.1K	2.2K	733 ohm	731A
160	240	96 ohm	960A	1.2K	1.2K	600 ohm	601A
160	270	100 ohm	101D	1.5K	1.5K	750 ohm	751A
162	260	100 ohm	101B	1.5K	3.3K	1031 ohm	102A
180	300	113 ohm	111B	2K	2K	1000 ohm	102B
180	470	130 ohm	131C	2.2K	5.6K	1579 ohm	162A
180	390	123 ohm	121A	2.2K	4.4K	1467 ohm	152A
180	270	108 ohm	111A	2.2K	3.3K	1320 ohm	132A
180	220	99 ohm	101A	3K	6.2K	2022 ohm	202A
200	1.5K	176 ohm	171D	3K	2K	1200 ohm	122A
220	330	132 ohm	131A	3.3K	4.7K	1939 ohm	192A
220	270	121 ohm	121B	3.9K	3.3K	1788 ohm	182A
220	220	110 ohm	111D	4.7K	22K	3873 ohm	392A
240	170	100 ohm	101C	5K	5K	2500 ohm	252A
240	620	173 ohm	171C	6.8K	22K	5194 ohm	522A
250	250	125 ohm	131B	10K	51K	8361 ohm	842A
270	470	171 ohm	171A	50K	100K	33,333 ohm	333A

1. All tolerances +/-2%. 2. Other values available on request. 3. Suffix letter has no significance - assigned in sequential order.

## Standard Resistor Values & EIA Code

Ohms	Code	Ohms	Code	Ohms	Code	Ohms	Code	Ohms	Code	Ohms	Code
0	000X	68	680	470	471	3.9K	392	33K	333	270K	274
10	100	75	750	510	511	4.7K	472	39K	393	330K	334
12	120	82	820	560	561	5.1K	512	47K	473	390K	394
15	150	100	101	680	681	5.6K	562	51K	513	470K	474
18	180	110	111	820	821	6.8K	682	56K	563	510K	514
22	220	120	121	1K	102	8.2K	822	68K	683	560K	564
27	270	150	151	1.2K	122	10K	103	82K	823	680K	684
33	330	180	181	1.5K	152	12K	123	100K	104	820K	824
39	390	220	221	1.8K	182	15K	153	120K	124	1M	105
47	470	270	271	2.2K	222	18K	183	150K	154		
51	510	330	331	2.7K	272	22K	223	180K	184		
56	560	390	391	3.3K	332	27K	273	220K	224		

### How to Order



NOTE: No dashes or spaces to appear in part number.  
Example: 753091103GPTR13

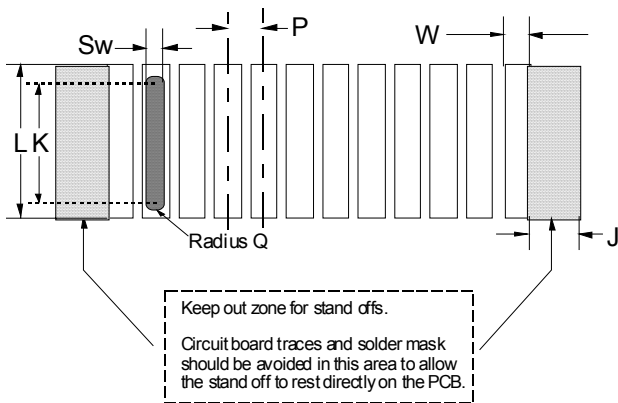
### Packaging

Tape & Reel		
Reel Diameter	7"	13"
Tape Width	16mm	
Tape Pitch	4mm	
# of Parts/Reel	1000	5000



## Recommended Land Patterns

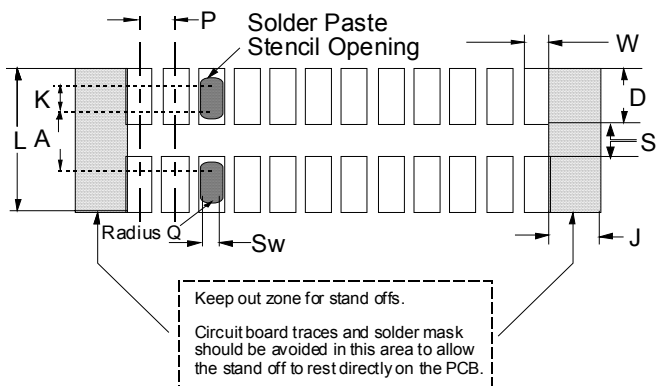
### Single Row Termination



Recommended Land Pattern						
mm/in.	D	P	L	W	J	S
753	1.27	0.64	3.05	0.43	0.89	0.51
	0.05	0.025	0.12	0.017	0.035	0.02

SRT Solder Paste Stencil Opening				
mm/in.	K	Sw	A	Q
4 mil 753	2.75	0.3	NA	0.15
	0.108	0.012		0.006
6 mil 753	1.72	0.3	NA	0.15
	0.068	0.012		0.006

### Dual Row Termination



DRT Solder Paste Stencil Opening				
mm/in.	K	Sw	A	Q
4 mil 753	0.51	0.3	1.32	0.15
	0.02	0.012	0.052	0.006
6 mil 753	0.28	0.3	1.47	0.15
	0.011	0.012	0.058	0.006