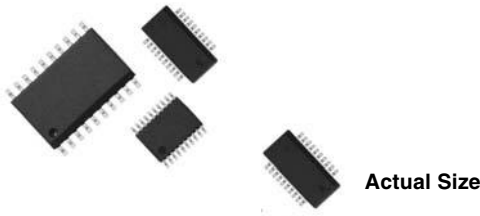




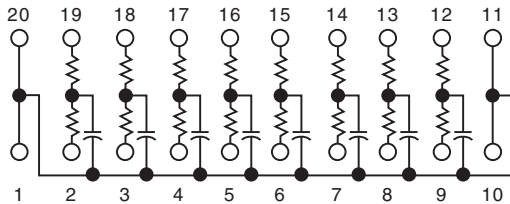
25 mil or 50 mil Pitch, T-Filter Thin Film Surface Mount Resistor/Capacitor Network



Small outline, surface mount, EMI/RFI reduction

Vishay Thin Film's T-filter network is an integrated thin film network on a single die. Noise suppression is at a maximum with the use of thin film technology. The T-filter network, schematic AA is designed to suppress EMI/RFI noise with such applications as I/O ports of personal computers and peripherals, workstations and local area networks. With a rugged molded case to protect the circuit from the environment and an integrated thin film network this product is your choice when reduced size, improved accuracy and surface mount capability are your goals. Available packages SOIC, SSOP and TSSOP.

SCHEMATIC AA



FEATURES

- Resistors and capacitors on a single chip
- Saves board space
- Reduces total assembly costs
- Uniform performance characteristics
- UL 94 V-0 flame resistant
- Rugged, molded case construction
- VTSRC - JEDEC M0-153AC
- VSSRC - JEDEC M0-137AD
- VSORC - JEDEC MS-013AC
- Compliant to RoHS Directive 2002/95/EC



TYPICAL PERFORMANCE

	TCR	TOLERANCE
RESISTOR	200	10 %
	TCC	TOLERANCE
CAPACITOR	200	20 %

STANDARD VALUES

MODELS			R (Ω)	C (pF)
VSORC	VSSRC	VTSRC		
	X		10	100
	X		25	200
X			100	390

STANDARD ELECTRICAL SPECIFICATIONS

TEST	SPECIFICATIONS	CONDITIONS
Material	Tantalum nitride on silicon	-
Pin/Lead Number	20	-
Resistance Range	10 Ω to 750 Ω	-
TCR: Absolute	± 200 ppm/°C	0 °C to + 70 °C
TCR: Tracking	± 10 ppm/°C	-
Tolerance: Absolute	± 10 % standard (R), ± 20 % standard (C)	At 1 MHz and V _{RMS} over + 10 °C to + 70 °C
Power Rating: Resistor	100 mW	-
Power Rating: Package	(T)SSOP: 1 W, SOIC: 1.2 W	See derating curve
Stability: Ratio	± 2 %	1000 h
Operating Temperature Range	0 °C to + 70 °C	-
Storage Temperature Range	- 55 °C to + 125 °C	-
Capacitance Range	TSSOP: 10 pF to 150 pF, SOIC/SSOP: 10 pF to 250 pF	-
ESD Protection	> 2 kV	MIL-STD-883, method 3015
Breakdown Voltage	35 V to 50 V	-

DIMENSIONS in inches and millimeters

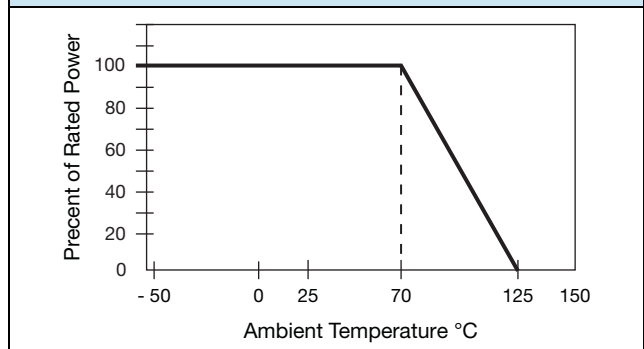

DIMENSION	JEDEC M0-153AC, VTSRC20-AA		JEDEC M0-137AD, VSSRC20-AA		JEDEC MS-013AC, VSORC20-AA	
	INCHES	MILLIMETERS	INCHES	MILLIMETERS	INCHES	MILLIMETERS
A	0.256 ± 0.003	6.5 ± 0.08	0.344 max.	8.74 max.	0.500 ± 0.010	12.7 ± 0.25
B (ref.)	0.025	0.65	0.025	0.64	0.050	1.27
C (ref.)	0.0087	0.22	0.010	0.25	0.016	0.41
D	0.004	0.10	0.006	0.15	0.008	0.20
E (typ.)	0.024	0.61	0.025	0.64	0.030	0.76
F	0.173 ± 0.003	4.39 ± 0.08	0.154 ± 0.003	3.9	0.293 ± 0.003	7.44
G	0.015 x 45°	0.38	0.015 x 45°	0.38	0.025 x 45°	0.64
H	0.252 ± 0.005	6.4 ± 0.13	0.236 ± 0.008	6.0 ± 0.20	0.406 ± 0.005	10.31
J (ref.)	0.005	0.13	0.010	0.25	0.010	0.25
W	0.043 ± 0.005	1.09 ± 0.13	0.064 ± 0.005	1.6	0.100 ± 0.005	2.59

IMPRINTING

VSORC, VSSRC, VTSRC	20	AA	XXX	/	XXX
MODEL	PIN COUNT	SCHEMATIC	RESISTANCE Code: e.g. 100 = 10 W	/	CAPACITANCE Code: e.g. 101 = 100 pF
		XXXX Date code			Optional marking

MECHANICAL SPECIFICATIONS

Resistive Element	Tantalum nitride
Substrate Material	Silicon
Body	Molded epoxy
Terminals	Copper alloy
Plating	100 % matte Sn
Lead Coplanarity	0.0005"
Marking Resistance to Solvents	Permanency testing per MIL-STD-202, method 215

DERATING CURVE

PACKING INFORMATION

MODEL	LEADS	TAPE AND REEL	TUBES
JEDEC M0-153AC, VTSRC (TSSOP)	20	2500	74
JEDEC M0-137AD, VSSRC (SSOP)	20	2500	55
JEDEC MS-013AC, VSORC (SOIC)	20	1000	38



GLOBAL PART NUMBER INFORMATION																
New Global Part Numbering: VTSRC20AA330470TF																
V	T	S	R	C	2	0	A	A	3	3	0	4	7	0	T	F
GLOBAL MODEL				NUMBER OF LEADS/ SCHEMATICS				RESISTANCE AND TOLERANCE/ CAPACITANCE AND TOLERANCE				PACKAGING				
VTSRC VSSRC VSORC				20AA				xxxxyy				UF = TUBED				
								First 2 digits are significant figures. Last digit specifies number of zeros to follow.				TAPE AND REEL TF = Full reels				
								K = 10 % resistance tol. fixed M = 20 % capacitor tol. fixed								
Historical Part Number example: VTSRC20AA330K470MT/R (for reference purposes only)																
VTSRC	20	AA	330K	470M	T/R											
MODEL	NUMBER OF LEADS	SCHEMATIC	RESISTANCE	TOLERANCE	PACKAGING											



Disclaimer

ALL PRODUCT, PRODUCT SPECIFICATIONS AND DATA ARE SUBJECT TO CHANGE WITHOUT NOTICE TO IMPROVE RELIABILITY, FUNCTION OR DESIGN OR OTHERWISE.

Vishay Intertechnology, Inc., its affiliates, agents, and employees, and all persons acting on its or their behalf (collectively, "Vishay"), disclaim any and all liability for any errors, inaccuracies or incompleteness contained in any datasheet or in any other disclosure relating to any product.

Vishay makes no warranty, representation or guarantee regarding the suitability of the products for any particular purpose or the continuing production of any product. To the maximum extent permitted by applicable law, Vishay disclaims (i) any and all liability arising out of the application or use of any product, (ii) any and all liability, including without limitation special, consequential or incidental damages, and (iii) any and all implied warranties, including warranties of fitness for particular purpose, non-infringement and merchantability.

Statements regarding the suitability of products for certain types of applications are based on Vishay's knowledge of typical requirements that are often placed on Vishay products in generic applications. Such statements are not binding statements about the suitability of products for a particular application. It is the customer's responsibility to validate that a particular product with the properties described in the product specification is suitable for use in a particular application. Parameters provided in datasheets and / or specifications may vary in different applications and performance may vary over time. All operating parameters, including typical parameters, must be validated for each customer application by the customer's technical experts. Product specifications do not expand or otherwise modify Vishay's terms and conditions of purchase, including but not limited to the warranty expressed therein.

Hyperlinks included in this datasheet may direct users to third-party websites. These links are provided as a convenience and for informational purposes only. Inclusion of these hyperlinks does not constitute an endorsement or an approval by Vishay of any of the products, services or opinions of the corporation, organization or individual associated with the third-party website. Vishay disclaims any and all liability and bears no responsibility for the accuracy, legality or content of the third-party website or for that of subsequent links.

Vishay products are not designed for use in life-saving or life-sustaining applications or any application in which the failure of the Vishay product could result in personal injury or death unless specifically qualified in writing by Vishay. Customers using or selling Vishay products not expressly indicated for use in such applications do so at their own risk. Please contact authorized Vishay personnel to obtain written terms and conditions regarding products designed for such applications.

No license, express or implied, by estoppel or otherwise, to any intellectual property rights is granted by this document or by any conduct of Vishay. Product names and markings noted herein may be trademarks of their respective owners.