

LCD EMI FILTER/TVS ARRAY



QFN-16 PACKAGE

DESCRIPTION

The EM8Q-100 is a QFN-16, 8 line low pass filter array with integrated TVS diodes. The EM8Q-100 is designed to suppress unwanted EMI/RFI signals and provide ESD protection for high-speed data interfaces such as LCD displays and SMART phones.

With a desired cutoff frequency of 150MHz, the EM8Q-100 provides good EMI/RFI attenuation better than 25dB in the 800MHz - 3GHz bandwidth. This blocks RF noises from GSM, DCS or Bluetooth which can affect the baseband chipset and other blocks. Coupled with the integrated TVS diodes, this device is able to meet IEC 61000-4-2 (ESD) and 61000-4-4 (EFT) immunity requirements.

FEATURES

- Compatible with IEC 61000-4-2 (ESD): Air - 15kV, Contact - 8kV
- Compatible with IEC 61000-4-4 (EFT): 40A - 5/50ns
- ESD Protection > 25 kilovolts
- Bidirectional EMI Filtering/TVS Low Pass Filters
- Low Insertion Loss: -3dB Roll-Off @ 150MHz
- Protects up to 8 Data Lines
- RoHS Compliant
- REACH Compliant

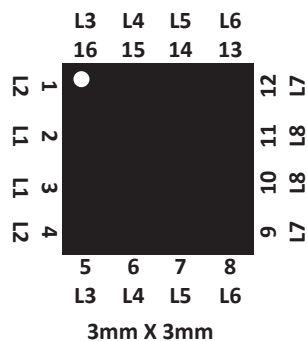
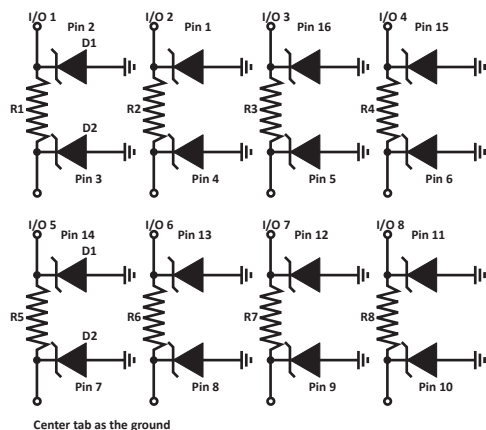
APPLICATIONS

- SMART Phones
- LCD Display Panel
- Portable Electronics
- SMART Cards

MECHANICAL CHARACTERISTICS

- Molded JEDEC QFN-16 Package
- Approximate Weight: 7 milligrams
- Lead-Free Pure-Tin Plating (Annealed)
- Solder Reflow Temperature:
Pure-Tin - Sn, 100: 260-270°C
- 12mm Tape and Reel Per EIA Standard 481
- Flammability Rating UL 94V-0

CIRCUIT DIAGRAM & PIN CONFIGURATION



TYPICAL DEVICE CHARACTERISTICS
MAXIMUM RATINGS @ 25°C Unless Otherwise Specified

PARAMETER	SYMBOL	VALUE	UNITS
Operating Temperature	T_A	-40 to 85	°C
Storage Temperature	T_{STG}	-55 to 150	°C
DC Power per Resistor	P	100	mW
Typical Resistance @ ±15%	R	100	OHMs
Soldering Temperature for 10 seconds	T_L	265	°C

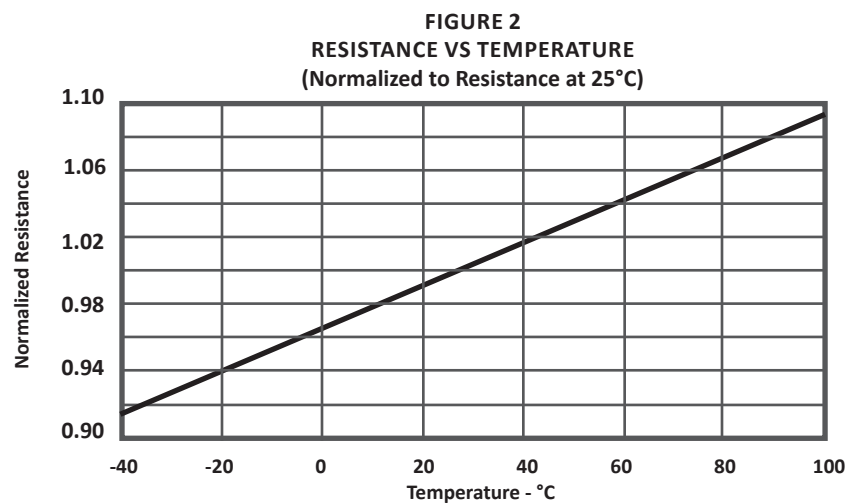
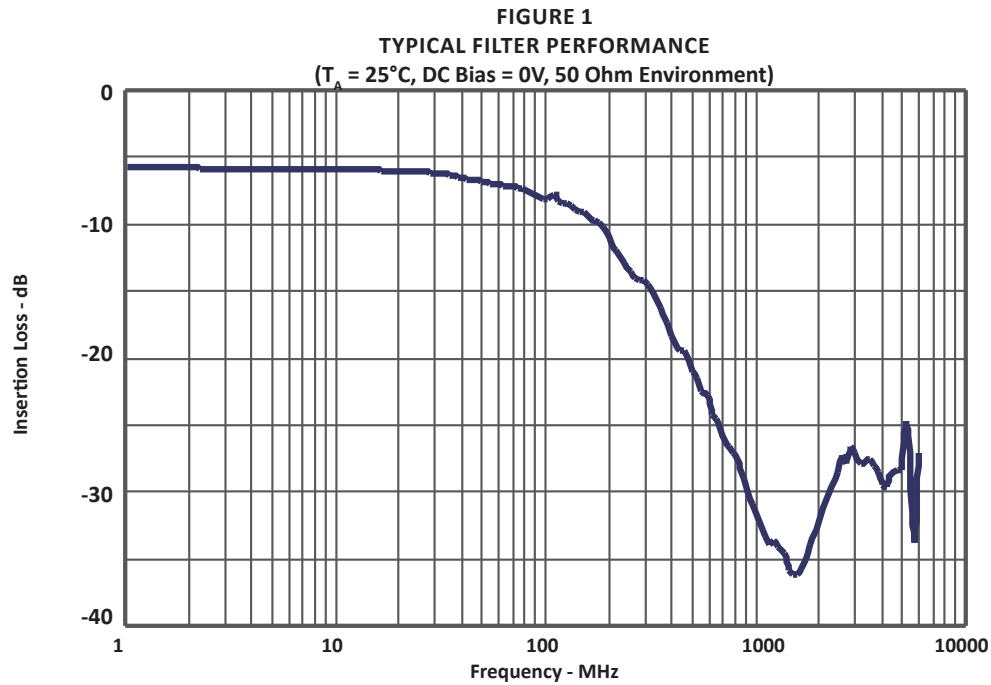
ELECTRICAL CHARACTERISTICS PER LINE @ 25°C Unless Otherwise Specified

PART NUMBER	RATED STAND-OFF VOLTAGE	MINIMUM BREAKDOWN VOLTAGE	MAXIMUM LEAKAGE CURRENT	TYPICAL FORWARD VOLTAGE	MINIMUM ATTENUATION	CUT-OFF FREQUENCY (50 OHMS I/O) ZERO BIAS	TYPICAL CAPACITANCE PER LINE (Note 1)
	V_{WM} VOLTS	@ 1mA $V_{(BR)}$ VOLTS	@ 3V I_D μA	@ 10mA V_F VOLTS	@ 800-3000 MHz dB	fC MHz	@2.5V, 1MHz C pF
EM8Q-100	5.0	6.0	0.1	0.8	25	150	20

NOTES

1. ± 20% tolerance.

TYPICAL DEVICE CHARACTERISTICS



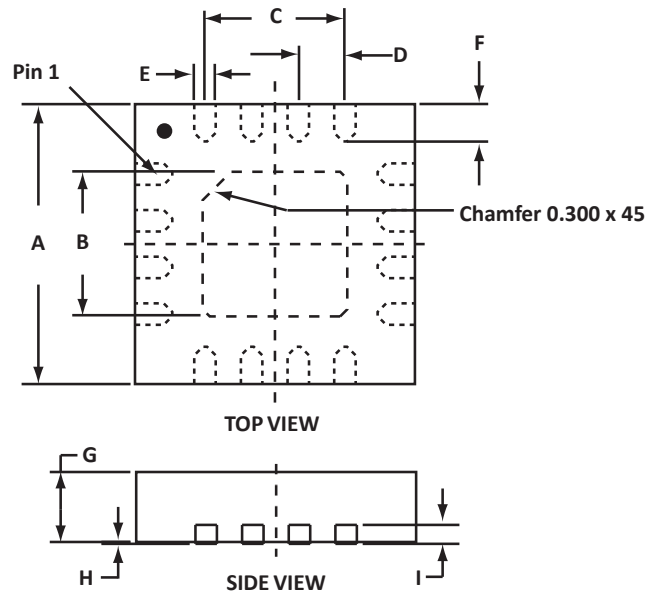
QFN-16 PACKAGE INFORMATION

OUTLINE DIMENSIONS

DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	3.00 SQ		0.118 SQ	
B	1.65	1.75	0.065	0.069
C	1.50 BSC		0.059 BSC	
D	0.50 BSC		0.020 BSC	
E	0.18	0.28	0.007	0.011
F	0.35	0.45	0.014	0.018
G	0.71	0.81	0.028	0.032
H	0.00	0.05	0.00	0.002
I	0.18	0.23	0.007	0.009

NOTES

- Controlling dimension: inches.
- Dimensioning and tolerances per ANSI Y14.M, 1985.
- Decimal tolerances for mounting pad and outline .xxx ± 0.05mm (± 0.002").
- Package length, width and height does not include protrusions, lead and gate burrs.

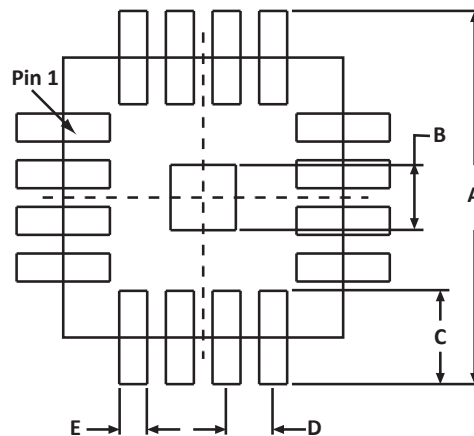


PAD LAYOUT DIMENSIONS

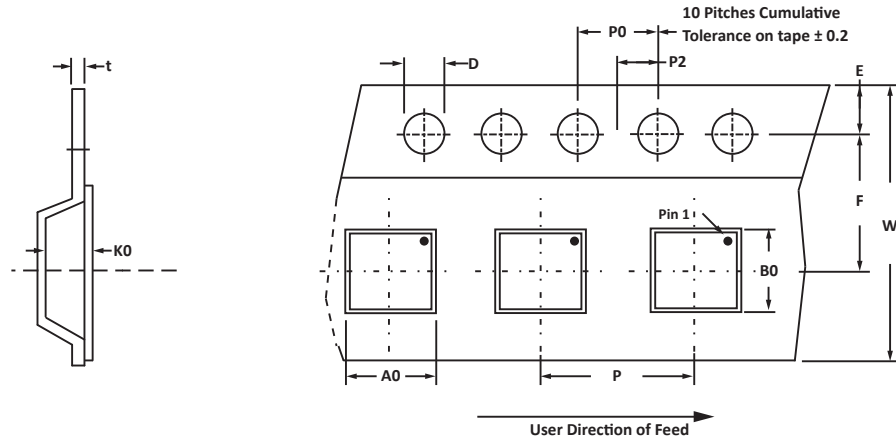
DIM	MILLIMETERS		INCHES	
	NOMINAL	NOMINAL	NOMINAL	NOMINAL
A	4.00		0.16	
B	0.70		0.028	
C	1.00		0.040	
D	0.50		0.020	
E	0.30		0.012	

NOTES

- Controlling dimension: millimeters.



TAPE AND REEL



SPECIFICATIONS

REEL DIA.	TAPE WIDTH	A0	B0	K0	D	E	F	W	P0	P2	P	tmax
178mm (7")	12mm	3.30 ± 0.10	3.30 ± 0.10	1.00 ± 0.10	1.50 ± 0.10	1.75 ± 0.10	5.50 ± 0.10	12.00 ± 0.30	4.00 ± 0.10	2.00 ± 0.05	8.00 ± 0.10	0.25

NOTES

- Dimensions are in millimeters.
- Surface mount product is taped and reeled in accordance with EIA-481.
- Suffix - T73 = 7" Reel - 3,000 pieces per 12mm tape.
- Suffix - T13 = 13" Reel - 10,000 pieces per 12mm tape.
- Marking on Part - logo, part number and pin one defined by dot on package.

Package outline, pad layout and tape specifications per document number 06054.R3 3/11.

ORDERING INFORMATION

BASE PART NUMBER	LEADFREE SUFFIX	TAPE SUFFIX	QTY/REEL	REEL SIZE	TUBE QTY
EM8Q-100	-LF	-T73	3,000	7"	n/a
EM8Q-100	-LF	-T13	10,000	13"	n/a

This device is only available in a Lead-Free configuration.

COMPANY INFORMATION

COMPANY PROFILE

In business more than 25 years, ProTek Devices™ is a privately held semiconductor company. The company offers a product line of overvoltage protection and overcurrent protection components. These include transient voltage suppressor array (TVS arrays) avalanche breakdown diode, steering diode TVS array and electronics SMD chip fuses. These components deliver circuit protection in electronic systems from numerous overvoltage and overcurrent events. They include lightning; electrostatic discharge (ESD); nuclear electromagnetic pulses (NEMP); inductive switching; and electromagnetic interference (EMI) / radio frequency interference (RFI). ProTek Devices also offers LED wafer die for ESD protection and related high frequency products. ProTek Devices is ISO 9001:2015 certified.

CONTACT US

Corporate Headquarters

2929 South Fair Lane
Tempe, Arizona 85282
USA

By Telephone

General: 602-431-8101
Sales: & Marketing: 602-414-5109
Customer Service: 602-414-5114
Product Technical Support: 602-414-5107

By Fax

General: 602-431-2288

By E-mail:

Asia Sales: asiasales@protekdevices.com
Europe Sales: europesales@protekdevices.com
U.S. Sales: ussales@protekdevices.com
Distributor Sales: distysales@protekdevices.com
Customer Service: service@protekdevices.com
Technical Support: support@protekdevices.com

ProTek Devices (Asia Pacific) Pte. Ltd.

8 Ubi Road 2, #06-19
Zervex
Singapore - 408538
Tel: +65-67488312
Fax: +65-67488313

Web

www.protekdevices.com

COPYRIGHT © ProTek Devices 2005 - This literature is subject to all applicable copyright laws and is not for resale in any manner.

SPECIFICATIONS: ProTek reserves the right to change the electrical and or mechanical characteristics described herein without notice.

DESIGN CHANGES: ProTek reserves the right to discontinue product lines without notice and that the final judgement concerning selection and specifications is the buyer's and that in furnishing engineering and technical assistance. ProTek assumes no responsibility with respect to the selection or specifications of such products. ProTek makes no warranty, representation or guarantee regarding the suitability of its products for any particular purpose, nor does ProTek assume any liability arising out of the application or use of any product or circuit and specifically disclaims any and all liability without limitation special, consequential or incidental damages.

LIFE SUPPORT POLICY: ProTek Devices products are not authorized for use in life support systems without written consent from the factory.