

## 6-Channel EMI Filter with Integrated ESD Protection

### EM6401M

#### Description

The EM6401M is a four-channel (C-R-C) Pi-style EMI filter array with integrated ESD protection. Its typical component values of  $R=100\Omega$  and  $C=17\text{pF}$  deliver a cutoff frequency. This performance makes the part ideal for parallel interfaces with data rates up to 70 Mbps in applications where wireless interference must be minimized. The specified attenuation range is very effective in minimizing interference from 2G/3G, GPS, Bluetooth® and WLAN signals. The EM6401M is available in the low-profile 12-lead 3.00mm x 1.35mm DFN3014 surface mount package.

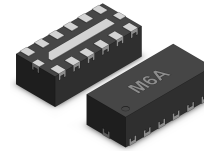
#### Feature

- u R/C Values of  $100\Omega$  and  $17\text{ pF}$  deliver Exceptional S21 Performance Characteristics of 110 MHz f3dB and -30 dB Stop Band Attenuation from 800 MHz to 3.0 GHz
- u TVS working voltage: 5V
- u Resistor:  $100\Omega \pm 20\%$
- u Typical Capacitance:  $34\text{ pF}$  ( $V_R = 2.5\text{ V}$ )
- u Protection and filtering for six lines
- u Solid-state technology
- u RoHS Compliant
- u IEC61000-4-2 (ESD)  $\pm 15\text{ kV}$  (air),  $\pm 8\text{ kV}$  (contact)
- u IEC61000-4-4 (EFT) 40A (5/50ns)

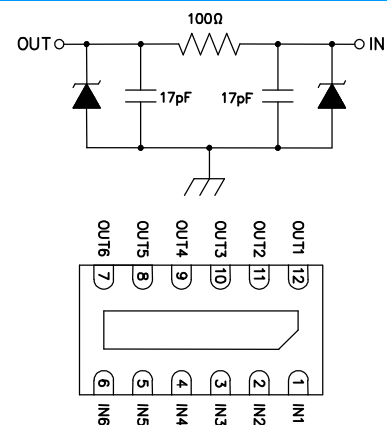
#### Applications

- u Cell Phone CCD Camera Lines
- u Protection for I/O Ports and Keypads
- u LCD and Camera Data Lines

#### DFN3014



#### Functional Diagram



#### Mechanical Characteristics

- u Nominal Dimensions: 3.00 x 1.35 x 0.90 mm
- u Molding Compound Flammability Rating : UL 94V-0
- u Quantity Per Reel : 3,000pcs
- u Reel Size : 7 inch
- u Lead Finish : Lead Free

#### Mechanical Characteristics (@ 25°C Unless Otherwise Specified)

Symbol	Parameter	Value	Units
$T_L$	Lead Soldering Temperature	260 (10sec)	°C
$T_J$	Junction Temperature	125	°C
$T_{STG}$	Storage Temperature Range	-55 to +150	°C
$T_{OP}$	Operating Temperature Range	-55 to +85	°C
	IEC61000-4-2 (ESD)		
	Air Discharge	$\pm 15$	KV
	Contact Discharge	$\pm 8$	
	IEC61000-4-4 (EFT)	40	A

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### Electrical Characteristics (@ 25°C Unless Otherwise Specified)

Part Number	Device Marking	V <sub>RWM</sub> (V) (Max.)	V <sub>B</sub> (V) (Min.)	I <sub>R</sub> (μA) (Max.)	R (Ω) (Typ.)	F <sub>3dB</sub> (MHz) (Typ.)	F <sub>6dB</sub> (MHz) (Typ.)	C <sub>TDIODE</sub> @2.5V (pF) (Typ.)	C <sub>TLINE</sub> @2.5V (pF) (Typ.)
EM6401M	M6A	5	6.0	1.0	100	105	170	17	34

### Characteristic Curves

Fig1. Power Derating Curve

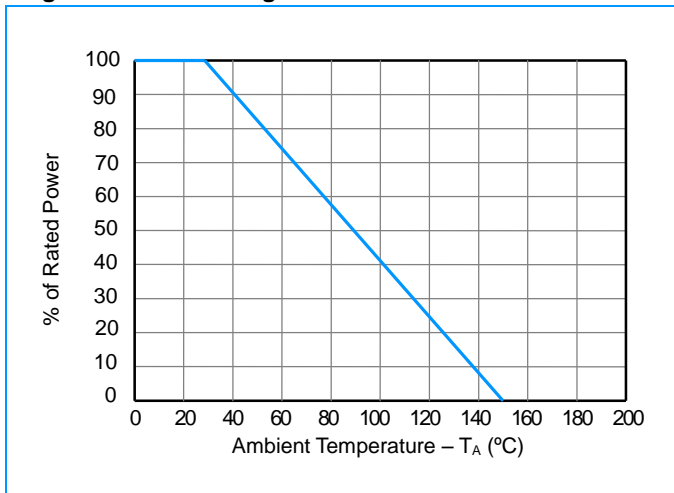


Fig2. ESD Clamping (8KV Contact per IEC61000-4-2)

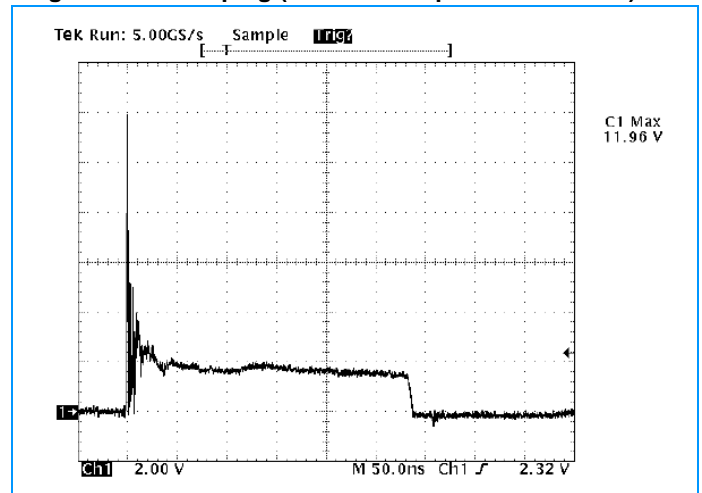


Fig3.

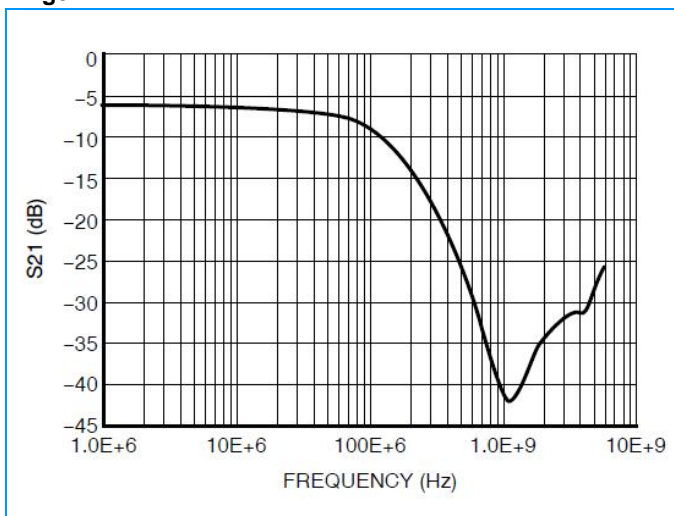
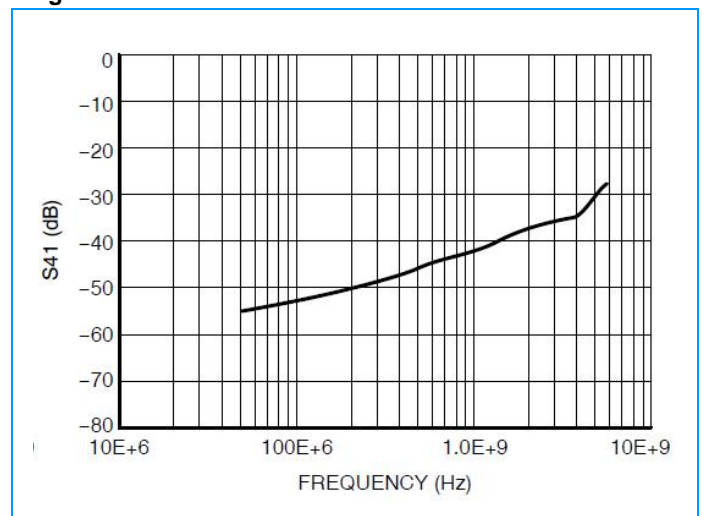


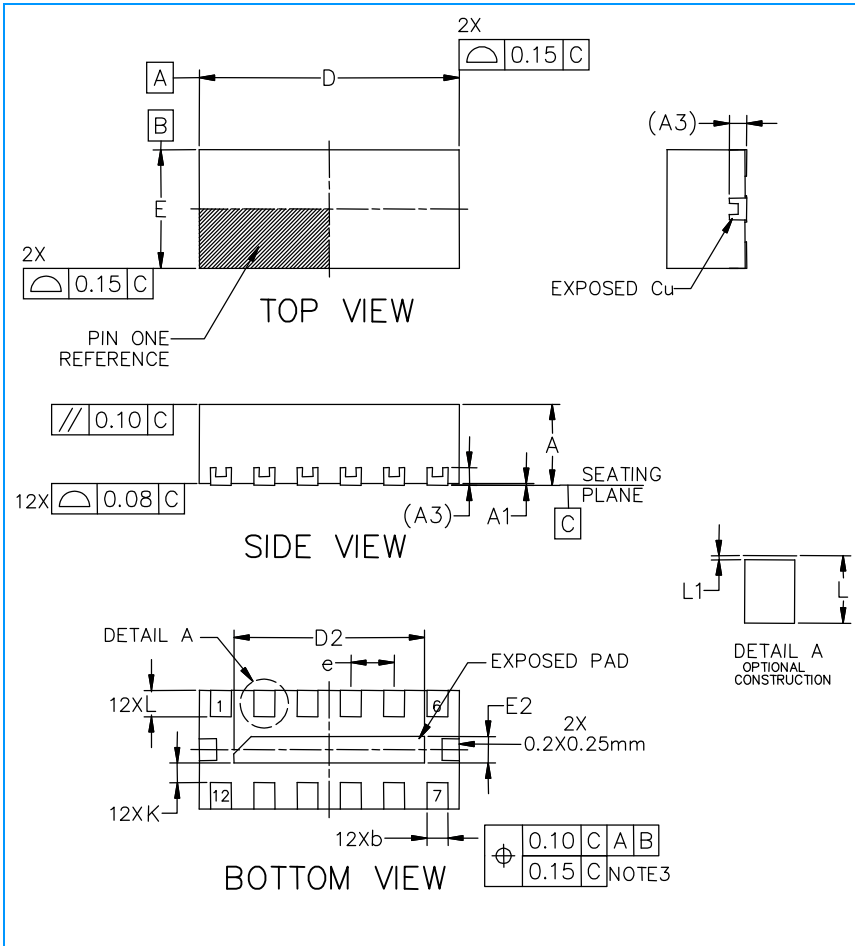
Fig4.



# 6-Channel EMI Filter with Integrated ESD Protection

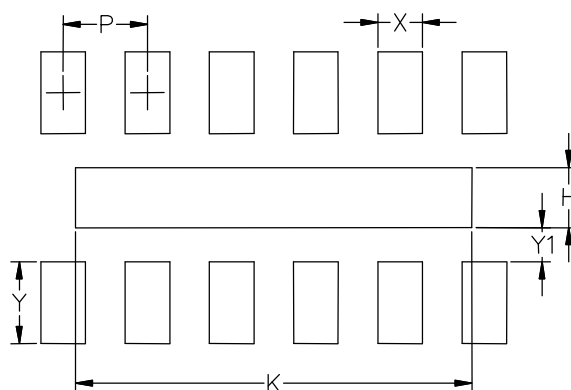
EM6401M

## DFN3014 Package Outline & Dimensions



Symbol	Millimeters		Inches	
	Min.	Max.	Min.	Max.
A	0.80	1.00	0.031	0.039
A1	0.00	0.05	0.00	0.002
A3	0.2REF		0.008	
b	0.18	0.30	0.07	0.012
D	3.00BSC		0.118	
D2	2.10	2.30	0.079	0.091
E	1.35BSC		0.053	
E2	0.20	0.40	0.008	0.016
e	0.50BSC		0.020	
K	0.20	--	0.008	--
L	0.20	0.40	0.008	0.016
L1	0.00	0.15	0.000	0.006

### Soldering Footprint



Symbol	Millimeters	Inches
H	0.351	0.014
K	2.352	0.093
P	0.500	0.020
X	0.265	0.010
Y	0.479	0.019
Y1	0.190	0.008