

EMI6316FCTBG Datasheet



| | |
|------------------------------|---|
| DiGi Electronics Part Number | EMI6316FCTBG-DG |
| Manufacturer | onsemi |
| Manufacturer Product Number | EMI6316FCTBG |
| Description | FILTER RC 40 OHM/7PF ESD SMD |
| Detailed Description | RC EMI Filter 2nd Order Low Pass 6 Channel R = 400 hms, C = 7pF (Total) 15-XFBGA, WLCSP |

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Purchase and inquiry

Manufacturer Product Number:

EMI6316FCTBG

Series:

-

Type:

Low Pass

Technology:

RC

Center / Cutoff Frequency:

-

Resistance - Channel (Ohms):

40

ESD Protection:

Yes

Applications:

Data Lines for Mobile Devices

Mounting Type:

Surface Mount

Size / Dimension:

0.061" L x 0.061" W (1.55mm x 1.55mm)

Base Product Number:

EMI6316

Manufacturer:

onsemi

Product Status:

Obsolete

Filter Order:

2nd

Number of Channels:

6

Attenuation Value:

-

Values:

R = 400ohms, C = 7pF (Total)

Operating Temperature:

-40°C ~ 85°C

Voltage - Rated:

-

Package / Case:

15-XFBGA, WLCSP

Height:

0.020" (0.50mm)

Environmental & Export classification

RoHS Status:

ROHS3 Compliant

REACH Status:

REACH Unaffected

HTSUS:

8548.00.0000

Moisture Sensitivity Level (MSL):

1 (Unlimited)

ECCN:

EAR99

EMI6316FCTBG

EMI Filter with ESD Protection for MicroSD Card Applications

Product Description

The EMI6316 is a 4 x 4, 15-bump EMI filter with ESD protection device for MicroSD card applications in a 0.4 mm pitch CSP form factor. It is fully compliant with IEC 61000-4-2. The EMI6316 is also RoHS II compliant.



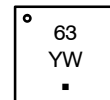
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MARKING DIAGRAM



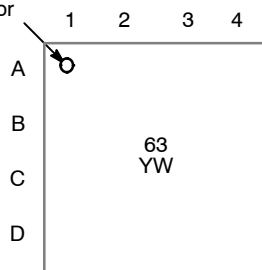
**WLCSP15
CASE 567FX**



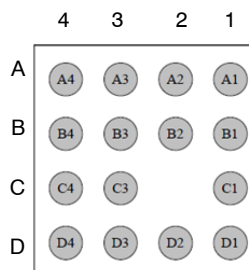
63 = Specific Device Code
Y = Year
W = Work Week
▪ = Pb-Free Package

PACKAGE / PINOUT DIAGRAMS

A1 Corner Indicator



Top View
(Bumps Down View)



Bottom View
(Bumps Up View)

ORDERING INFORMATION

See detailed ordering, marking and shipping information in the package dimensions section on page 3 of this data sheet.

EMI6316FCTBG

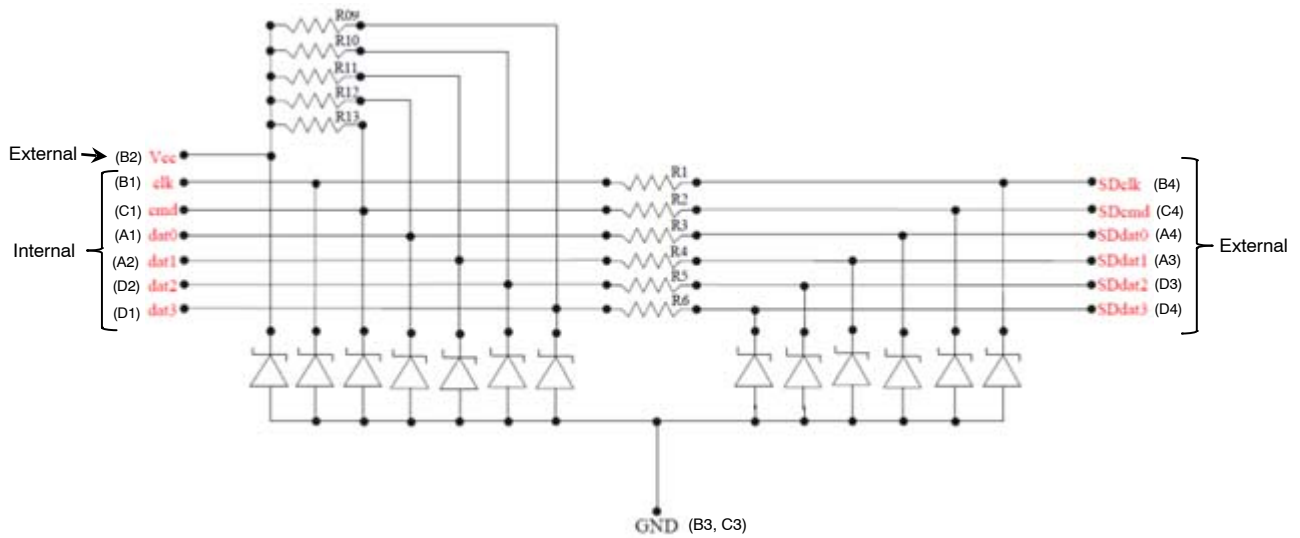


Figure 1. Electrical Schematic

Table 1. PIN DESCRIPTIONS

| Pin | Description | Pin | Description | Pin | Description | Pin | Description |
|-----|-----------------|-----|--------------------------|-----|----------------|-----|------------------|
| A1 | dat0 Internal | B1 | clk Internal | C1 | cmd Internal | D1 | data3 Internal |
| A2 | dat1 Internal | B2 | V _{CC} External | | | D2 | data2 Internal |
| A3 | SDdat1 External | B3 | GND | C3 | GND | D3 | SDdata2 External |
| A4 | SDdat0 External | B4 | SDclk External | C4 | SDcmd External | D4 | SDdata3 External |

EMI6316FCTBG**ELECTRICAL SPECIFICATIONS AND CONDITIONS****Table 2. PARAMETERS AND OPERATING CONDITIONS**

| Parameter | Rating | Unit |
|-----------------------------|-------------|------|
| Storage Temperature Range | -55 to +150 | °C |
| Operating Temperature Range | -40 to +85 | °C |

Table 3. ELECTRICAL OPERATING CHARACTERISTICS (Note 1)

| Symbol | Parameter | Conditions | Min | Typ | Max | Unit |
|--|---|---|-----------|------|-------|------|
| R ₁ R ₂ R ₃ R ₄ R ₅ R ₆ | Resistance | | 34 | 40 | 46 | Ω |
| R ₉ R ₁₀ R ₁₁ R ₁₂ | Resistance | | 42.5 | 50 | 57.5 | kΩ |
| R ₁₃ | Resistance | | 12.75 | 15 | 17.25 | kΩ |
| I _{LEAK} | Leakage Current per Channel | V _{IN} = 3.0 V | | 10 | 100 | nA |
| C | Line Capacitance | At 1 MHz, V _{IN} = 0 V | 9 | 11.5 | 14 | pF |
| | | At 1 MHz, V _{IN} = 1.8 V (Note 2) | | 8 | | pF |
| | | At 1 MHz, V _{IN} = 2.5 V | | 7 | | pF |
| V _B | Breakdown Voltage (Positive) | I _R = 1 mA | 6 | 7 | 9 | V |
| V _{ESD} | ESD Protection Peak Discharge Voltage at A3, A4, B2, B4, C4, D3 and D4 pins a) Contact Discharge per IEC 61000-4-2 standard b) Air Discharge per IEC 61000-4-2 standard | (Note 3) | ±8 ±15 | | | kV |
| | ESD Protection Peak Discharge Voltage at A1, A2, B1, C1, D1 and D2 pins a) Contact Discharge per IEC 61000-4-2 standard b) Air Discharge per IEC 61000-4-2 standard | (Note 3) | ±2 ±2 | | | |

- All parameters specified at T_A = 25°C unless otherwise noted.
- MicroSD version 3.0 SDR104 compliant.
- Standard IEC 61000-4-2 with C_{Discharge} = 150 pF, R_{Discharge} = 330 Ω.

Table 4. CSP TAPE AND REEL SPECIFICATIONS†

| Part Number | Chip Size (mm) | Package | Shipping† |
|--------------|--------------------|----------------------|--------------------|
| EMI6316FCTBG | 1.56 x 1.56 x 0.50 | WLCSP15 (Pb-Free) | 5000 / Tape & Reel |

† For information on tape and reel specifications, including part orientation and tape sizes, please refer to our Tape and Reel Packaging Specification Brochure, BRD8011/D.

EMI6316FCTBG

RF CHARACTERISTICS

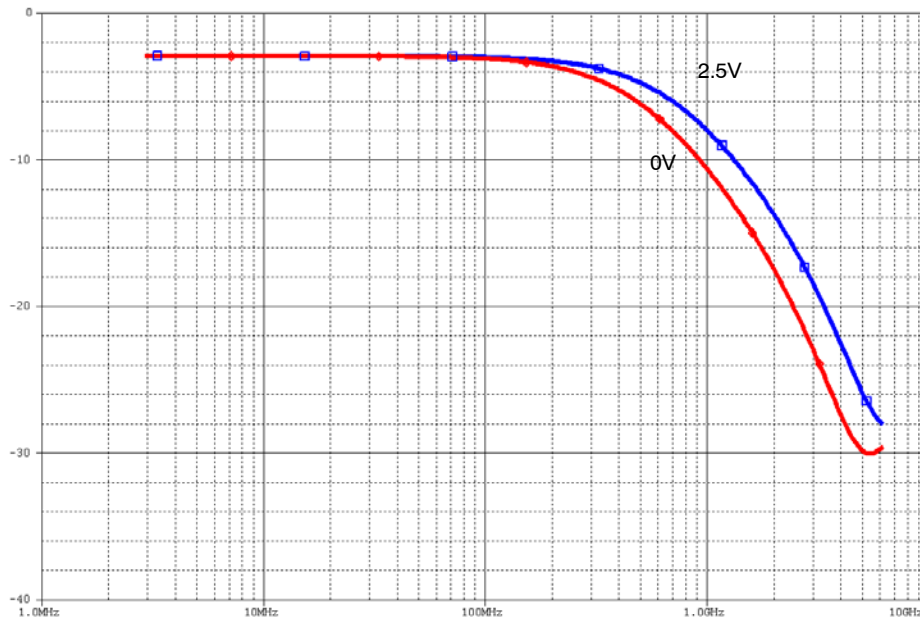


Figure 2. S21 Attenuation Simulation



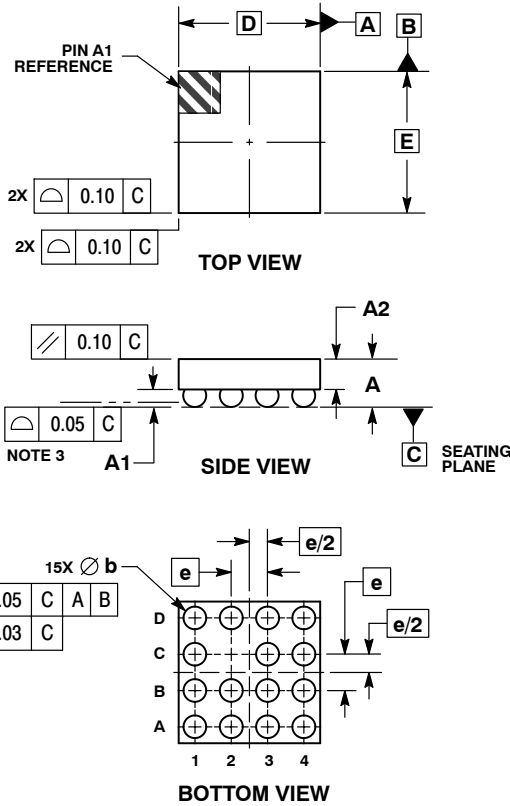
**MECHANICAL CASE OUTLINE
PACKAGE DIMENSIONS**



SCALE 4:1

WLCSP15, 1.56x1.56
CASE 567FX
ISSUE O

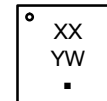
DATE 07 JUN 2012



- NOTES:
1. DIMENSIONING AND TOLERANCING PER ASME Y14.5M, 1994.
 2. CONTROLLING DIMENSION: MILLIMETERS.
 3. COPLANARITY APPLIES TO SPHERICAL CROWNS OF SOLDER BALLS.

| DIM | MILLIMETERS | |
|-----|-------------|-------|
| | MIN | MAX |
| A | 0.47 | 0.53 |
| A1 | 0.185 | 0.205 |
| A2 | 0.305 REF | |
| b | 0.24 | 0.29 |
| D | 1.56 BSC | |
| E | 1.56 BSC | |
| e | 0.40 BSC | |

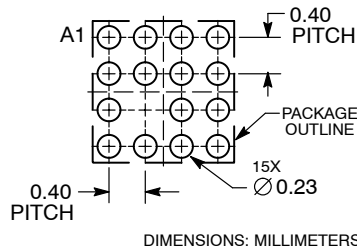
GENERIC MARKING DIAGRAM*



- XX = Specific Device Code
- Y = Year
- W = Work Week
- = Pb-Free Package

*This information is generic. Please refer to device data sheet for actual part marking. Pb-Free indicator, "G" or microdot "▪", may or may not be present.

RECOMMENDED SOLDERING FOOTPRINT*



*For additional information on our Pb-Free strategy and soldering details, please download the **onsemi** Soldering and Mounting Techniques Reference Manual, SOLDERRM/D.

| | | |
|-------------------------|---------------------------|--|
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| DESCRIPTION: | WLCSP15, 1.56X1.56 | PAGE 1 OF 1 |

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