





### FIVE ELEMENT COMMON ANODE ESD-PROTECTION DIODE ARRAY

### **Features**

- 5-line ESD Protection
- Sub-miniature Package (1.6 x 1.6mm)
- Low Capacitance 42pF typ @ V<sub>R</sub> = 0V
- Provides a High Level of Protection from ESD to IEC61000-4-2
  - ±30kV Contact Discharge
  - ±30kV Air Discharge
- Lead Free/RoHS Compliant (Note 1)
- "Green" Device (Note 2)
- Qualified to AEC-Q101 Standards for High Reliability

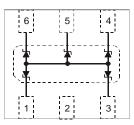
### **Mechanical Data**

- Case: DFN1616-6
- Case Material: Molded Plastic, "Green" Molding Compound. UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminals: Solderable per MIL-STD-202, Method 208
- Lead Free Plating (NiPdAu Finish over Copper leadframe).
- Polarity: Pin 1 Dot and Center Pad Notch, See Diagram
- Marking Information: See Page 2
- Ordering Information: See Page 2
- Weight: 0.004 grams (approximate)

#### DFN1616-6



**BOTTOM VIEW** 



**TOP VIEW** Internal Schematic

# **Maximum Ratings** @T<sub>A</sub> = 25°C unless otherwise specified

	Characteristic	Symbol	Value	Unit
Peak Pulse Current, 8/2	20μs waveform, single shot, per IEC61000-4-5	I <sub>PPM</sub>	5	A
Peak Pulse Power, 8/20	μs waveform, single shot, per IEC61000-4-5	P <sub>PP</sub>	70	W
ESD Rating	Human Body Model	ESD	8	kV
	Machine Model		400	V
	IEC61000-4-2 Air Discharge	E3D	30	kV
	IEC61000-4-2 Contact Discharge		30	kV

### Thermal Characteristics

Characteristic	Symbol	Value	Unit
Thermal Resistance Junction to Ambient Air (Note 3)	$R_{ hetaJA}$	256	°C/W
Operating and Storage Temperature Range	T <sub>J</sub> , T <sub>STG</sub>	-55 to +150	°C

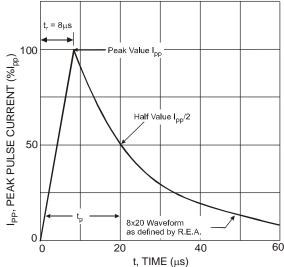
## **Electrical Characteristics** @T<sub>A</sub> = 25°C unless otherwise specified

Reverse Standoff Voltage V <sub>RWM</sub> @ I <sub>RWM</sub> = 1μΑ	Vo	kdown Itage _ @ I <sub>T</sub>	Test Current	Max. Reverse Leakage @ V <sub>RWM</sub> (Note 4)	Max. Clamping Voltage @ I <sub>PP</sub> = 1A per IEC61000-4-5	Max. Clamping Voltage V <sub>c</sub> @ I <sub>PP</sub> = 5A per IEC61000-4-5	Max. Forward Clamping Voltage V <sub>F</sub> @ I <sub>F</sub> = 1A per IEC61000-4-5	Voltage V <sub>F</sub> @ I <sub>F</sub> = 5A	V <sub>R</sub> = 0V f = 1MHz	Typical Total Capacitance V <sub>R</sub> = 2.5V f = 1MHz
Min (V)	Min (V)	Max (V)	I <sub>T</sub> (mA)	I <sub>R</sub> (μA)	V <sub>C</sub> (V)	V <sub>C</sub> (V)	V <sub>F</sub> (V)	V <sub>F</sub> (V)	C <sub>⊤</sub> (pF)	C <sub>⊤</sub> (pF)
5.0	6	8	1.0	0.1	9.5	12.5	2	4	50	25

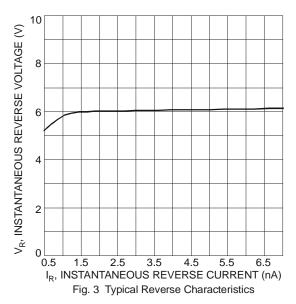
Notes:

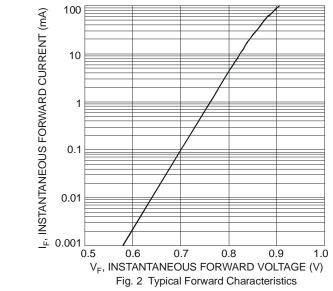
- 1. No Purposefully added Lead.
- 2. Diodes Inc.'s "Green" policy can be found on our website at http://www.diodes.com/products/lead\_free/index.php.
  3. Part mounted on FR-4 PC board with recommended pad layout, which can be found on our website at http://www.diodes.com/datasheets/ap02001.pdf. Only one switching diode powered on.
- 4. Short duration pulse test used to minimize self-heating effect.





t, TIME (μs) Fig. 1 Pulse Waveform





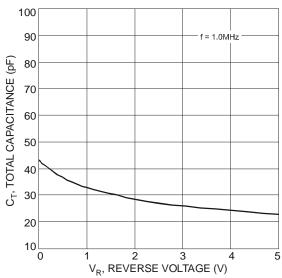


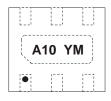
Fig. 4 Typical Capacitance vs. Reverse Voltage

# **Ordering Information** (Note 5)

Part Number	Case	Packaging		
DMF05LCFLP-7	DFN1616-6	3000/Tape & Reel		

Notes: 5. For packaging details, go to our website at http://www.diodes.com/datasheets/ap02007.pdf.

# **Marking Information**



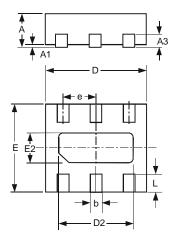
A10 = Product Type Marking Code YM = Date Code Marking Y = Year (ex: X = 2010) M = Month (ex: 9 = September)

Date Code Key

Year	20	10	20	11	20	12	20	13	20	14	20	15
Code		X	`	Y	2	7	/	4	E	3	(	
Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Code	1	2	3	4	5	6	7	8	9	0	N	D

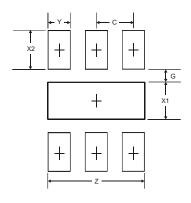


# **Package Outline Dimensions**



DFN1616-6						
Dim	Min	Max	Тур			
Α	0.545	0.605	0.575			
A1	0	0.05	0.02			
А3	_	_	0.13			
b	0.20	0.30	0.25			
D	1.55	1.675	1.60			
D2	1.10	1.30	1.20			
Е	1.55	1.675	1.60			
е	_	_	0.50			
E2	0.30	0.50	0.40			
Ĺ	0.275	0.375	0.325			
All	All Dimensions in mm					

# **Suggested Pad Layout**



Dimensions	Value (in mm)
Z	1.3
G	0.175
X1	0.50
X2	0.525
Y	0.30
С	0.50



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