

## Features

- 5-Line ESD Protection
- Sub-Miniature Package (1.6 × 1.6mm)
- Low Capacitance – 25pF typ @ V<sub>R</sub> = 0V
- Provides a High Level of Protection from ESD to IEC61000-4-2
  - ±25kV Contact Discharge
  - ±25kV Air Discharge
- **Totally Lead-Free & Fully RoHS Compliant (Notes 1 & 2)**
- **Halogen and Antimony Free. “Green” Device (Note 3)**
- **The DMF05LCFLPAQ is suitable for automotive applications requiring specific change control; this part is AEC-Q101 qualified, PPAP capable, and manufactured in IATF 16949 certified facilities.**

<https://www.diodes.com/quality/product-definitions/>

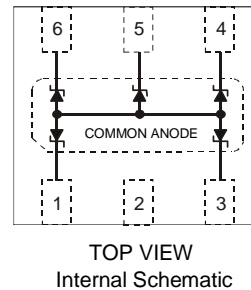
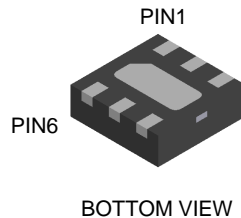
## Mechanical Data

- Package: U-DFN1616-6
- Package 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). (e4)
- Polarity: Pin 1 Dot and Center Pad Notch, See Diagram
- Marking Information: See Below
- Ordering Information: See Below
- Weight: 0.004 grams (Approximate)

## Applications

- 12C/13C/12S
- Audio
- UART
- Common I/O

U-DFN1616-6

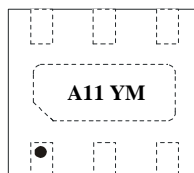


## Ordering Information (Note 4)

Part Number	Package	Packing	
		Qty.	Carrier
DMF05LCFLPAQ-7	U-DFN1616-6	3000	Tape & Reel

- Notes:
1. No purposely added lead. Fully EU Directive 2002/95/EC (RoHS), 2011/65/EU (RoHS 2) & 2015/863/EU (RoHS 3) compliant.
  2. See <https://www.diodes.com/quality/lead-free/> for more information about Diodes Incorporated's definitions of Halogen- and Antimony-free, "Green" and Lead-free.
  3. Halogen- and Antimony-free "Green" products are defined as those which contain <900ppm bromine, <900ppm chlorine (<1500ppm total Br + Cl) and <1000ppm antimony compounds.
  4. For packaging details, go to our website at <https://www.diodes.com/design/support/packaging/diodes-packaging/>.

## Marking Information



A11 = Product Type Marking Code  
 YM = Date Code Marking  
 Y = Year (ex: K = 2023)  
 M = Month (ex: 7 = July)

### Date Code Key

Year	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034
Code	K	L	M	N	P	R	S	T	U	V	W	X

Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Code	1	2	3	4	5	6	7	8	9	O	N	D

**Maximum Ratings** (@T<sub>A</sub> = +25°C, unless otherwise specified.)

Characteristic		Symbol	Value	Unit
Peak Pulse Current, 8/20μs Waveform, Single Shot, per IEC61000-4-5		I <sub>PPM</sub>	5	A
Peak Pulse Power, 8/20μs 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		±25	kV
	IEC61000-4-2 Contact Discharge		±25	kV

**Thermal Characteristics**

Characteristic	Symbol	Value	Unit
Thermal Resistance Junction to Ambient Air (Note 5)	R <sub>θJA</sub>	280	°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>RRM</sub> = 1μA	Breakdown Voltage V <sub>BR</sub> @ I <sub>T</sub>		Test Current I <sub>T</sub> (mA)	Max Reverse Leakage @ V <sub>RWM</sub> (Note 6) I <sub>R</sub> (μA)	Max Clamping Voltage @ I <sub>PP</sub> = 1A per IEC61000-4-5 V <sub>C</sub> (V)	Max Clamping Voltage @ I <sub>PP</sub> = 5A per IEC61000-4-5 V <sub>C</sub> (V)	Max Total Capacitance V <sub>R</sub> = 0V f = 1MHz C <sub>T</sub> (pF)	Typical Total Capacitance V <sub>R</sub> = 2.5V f = 1MHz C <sub>T</sub> (pF)
	Min (V)	Min (V)						
5.0	6	8	1.0	0.1	9.5	12.5	25	16

- Notes:
- Part mounted on FR-4 PC board with recommended pad layout, which can be found on our website at <https://www.diodes.com/design/support/packaging/diodes-packaging/>. Only one switching diode powered on.
  - Short duration pulse test used to minimize self-heating effect.

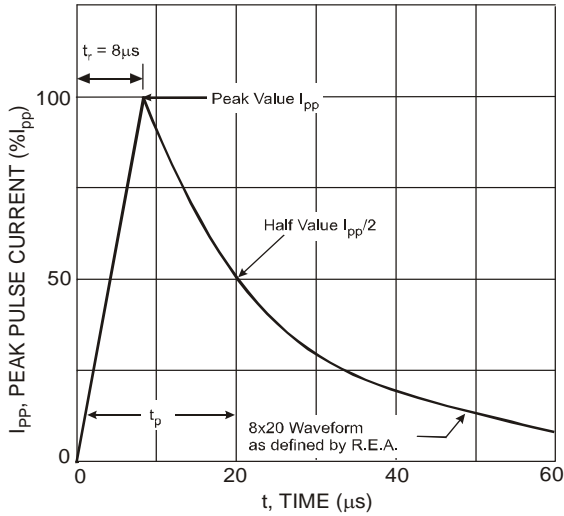


Figure 1. Pulse Waveform

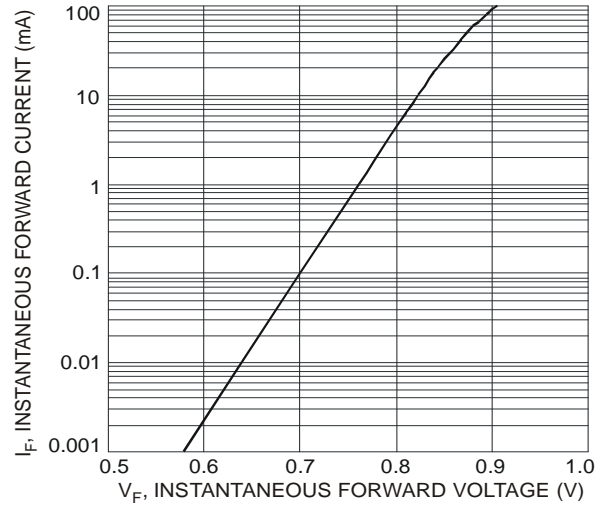


Figure 2. Typical Forward Characteristics

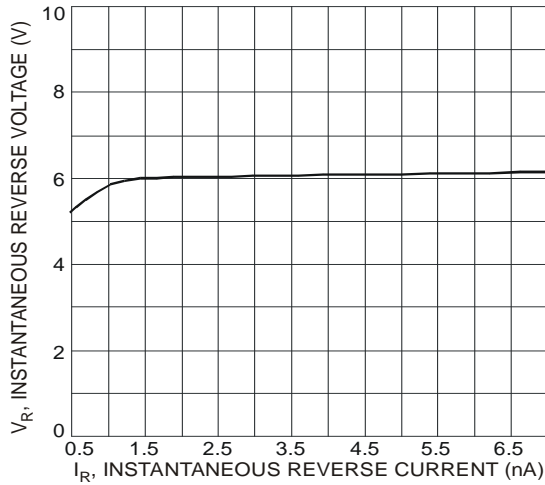


Figure 3. Typical Reverse Characteristics

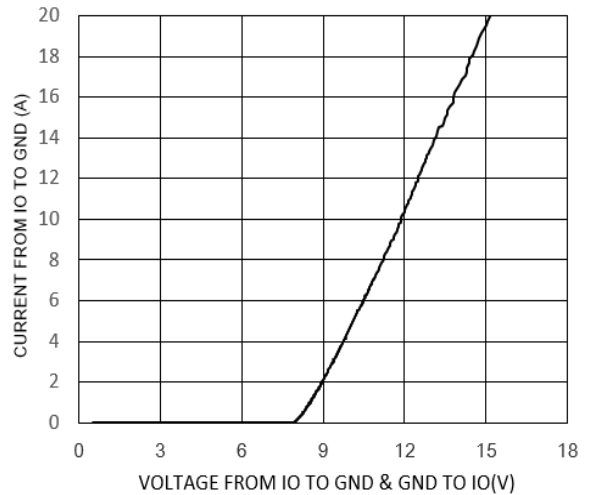


Figure 4. TLP Curve ( $t_p = 100ns$ )

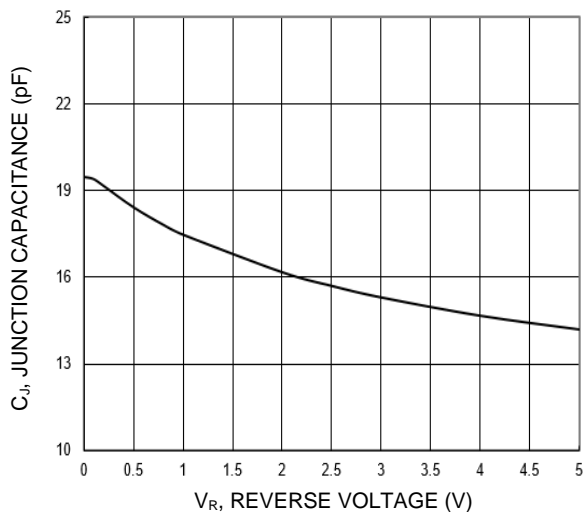


Figure 5. Typical Junction Capacitance  $f = 1MHz$

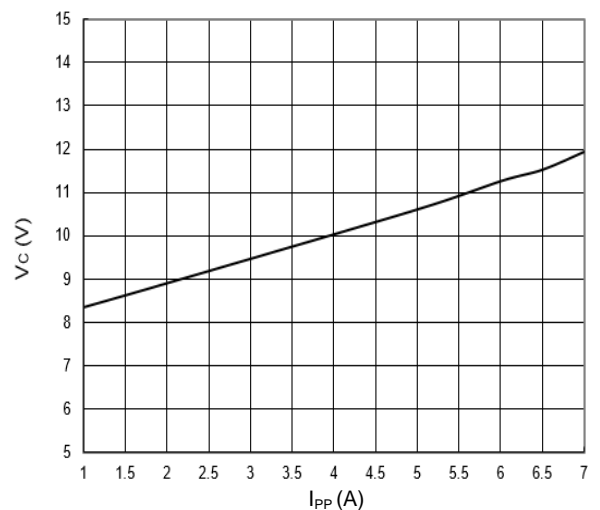
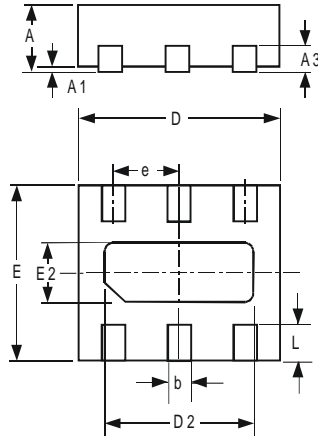


Figure 6. Typical Peak Clamping Voltage  $V_c$  vs. Peak Pulse Current  $I_{pp}$

## Package Outline Dimensions

Please see <http://www.diodes.com/package-outlines.html> for the latest version.

**U-DFN1616-6**

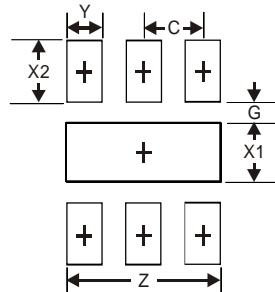


U-DFN1616-6			
Dim	Min	Max	Typ
A	0.545	0.605	0.575
A1	0	0.05	0.02
A3	-	-	0.13
b	0.20	0.30	0.25
D	1.55	1.675	1.60
D2	1.10	1.30	1.20
E	1.55	1.675	1.60
e	-	-	0.50
E2	0.30	0.50	0.40
L	0.275	0.375	0.325
All Dimensions in mm			

## Suggested Pad Layout

Please see <http://www.diodes.com/package-outlines.html> for the latest version.

**U-DFN1616-6**



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

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