Absolute Maximum Ratings

Symbol	Parameter	Value	Units
I_{PP}	Peak Current (t_p=8/20μs)	3.0	A
T_{OP}	Operating Temperature	–40 to 125	°C
T_{STOR}	Storage Temperature	–55 to 150	°C

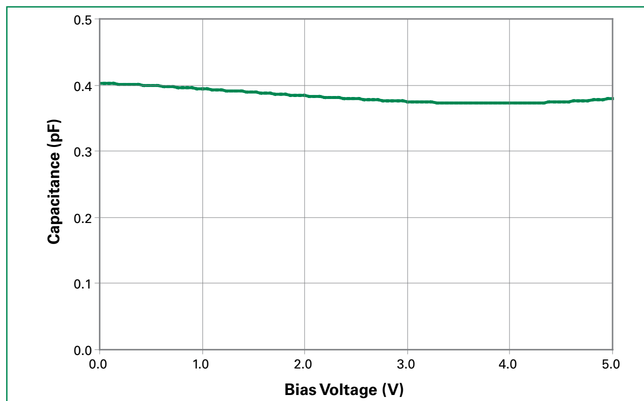
CAUTION: Stresses above those listed in "Absolute Maximum Ratings" may cause permanent damage to the device. This is a stress only rating and operation of the device at these or any other conditions above those indicated in the operational sections of this specification is not implied.

Electrical Characteristics (T_{OP}=25°C)

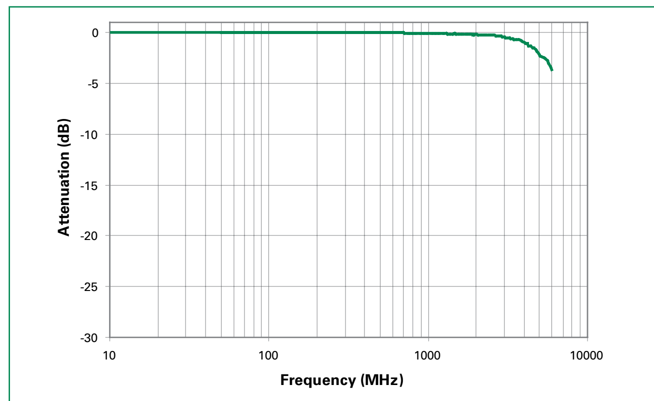
Parameter	Symbol	Test Conditions	Min	Typ	Max	Units
Reverse Standoff Voltage	V_{RWM}	$I_R \le 1\mu A$			6.0	V
Reverse Leakage Current	I_{LEAK}	V_R=5V, Any I/O to GND		0.1	0.5	μA
Clamp Voltage[1]	V_C	I_{PP}=1A, t_p=8/20μs, Fwd		11.0		V
		I_{PP}=2A, t_p=8/20μs, Fwd		12.5		V
Dynamic Resistance	R_{DYN}	$(V_{C2}-V_{C1}) / (I_{PP2}-I_{PP1})$		1.5		Ω
ESD Withstand Voltage[1]	V_{ESD}	IEC61000-4-2 (Contact)	±8			kV
		IEC61000-4-2 (Air)	±15			kV
Diode Capacitance[1]	$C_{I/O-GND}$	Reverse Bias=0V		0.4		pF

Note: [1] Parameter is guaranteed by design and/or device characterization.

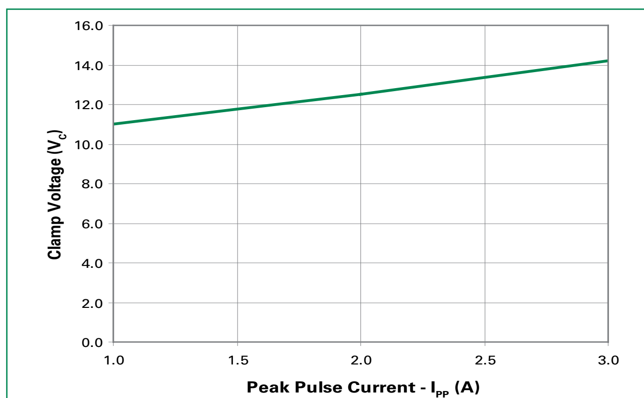
Capacitance vs. Bias Voltage



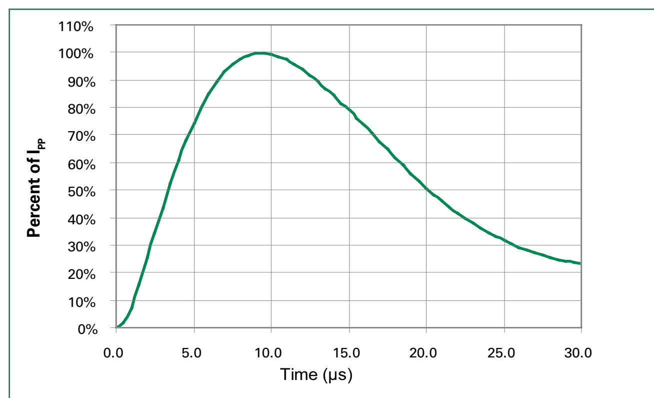
Insertion Loss (S21) I/O to GND



Clamping Voltage vs. I_{PP}



Pulse Waveform



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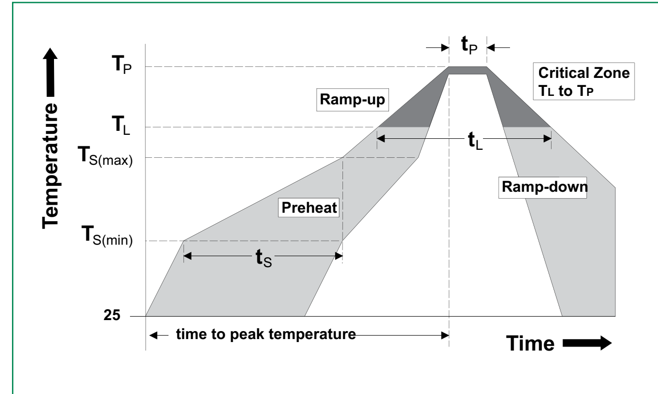
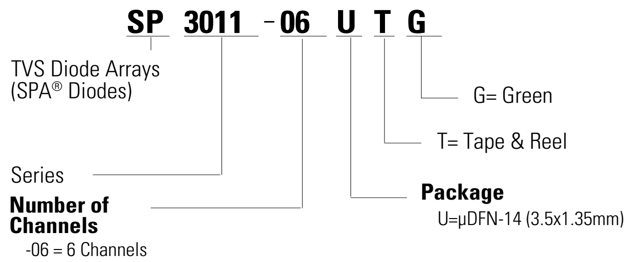
Soldering Parameters

Reflow Condition		Pb – Free assembly
Pre Heat	- Temperature Min ($T_{s(min)}$)	150°C
	- Temperature Max ($T_{s(max)}$)	200°C
	- Time (min to max) (t_s)	60 – 180 secs
Average ramp up rate (Liquidus) Temp (T_L) to peak		3°C/second max
$T_{S(max)}$ to T_L - Ramp-up Rate		3°C/second max
Reflow	- Temperature (T_L) (Liquidus)	217°C
	- Temperature (t_L)	60 – 150 seconds
Peak Temperature (T_P)		$260^{+0/-5}$ °C
Time within 5°C of actual peak Temperature (t_p)		20 – 40 seconds
Ramp-down Rate		6°C/second max
Time 25°C to peak Temperature (T_P)		8 minutes Max.
Do not exceed		260°C



Part Numbering System

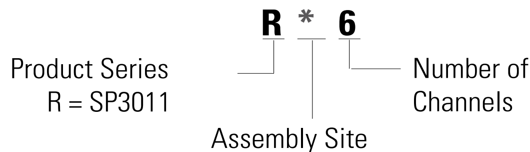


Product Characteristics

Lead Plating	Pre-Plated Frame
Lead Material	Copper Alloy
Lead Coplanarity	0.0004 inches (0.102mm)
Substitute Material	Silicon
Body Material	Molded Epoxy
Flammability	UL 94 V-0

Notes :
1. All dimensions are in millimeters
2. Dimensions include solder plating.
3. Dimensions are exclusive of mold flash & metal burr.
4. Blo is facing up for mold and facing down for trim/form, i.e. reverse trim/form.
5. Package surface matte finish VDI 11-13.

Part Marking System



Ordering Information

Part Number	Package	Min. Order Qty.
SP3011-06UTG	µDFN-14	3000

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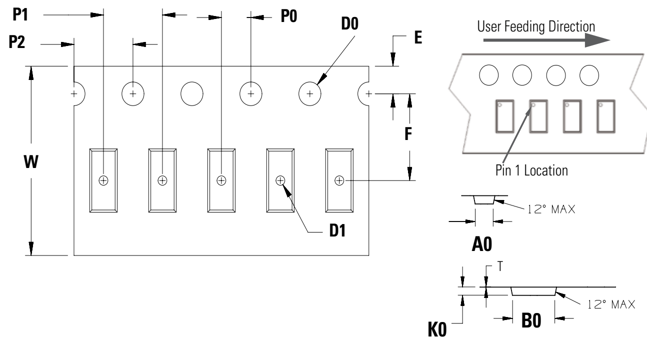
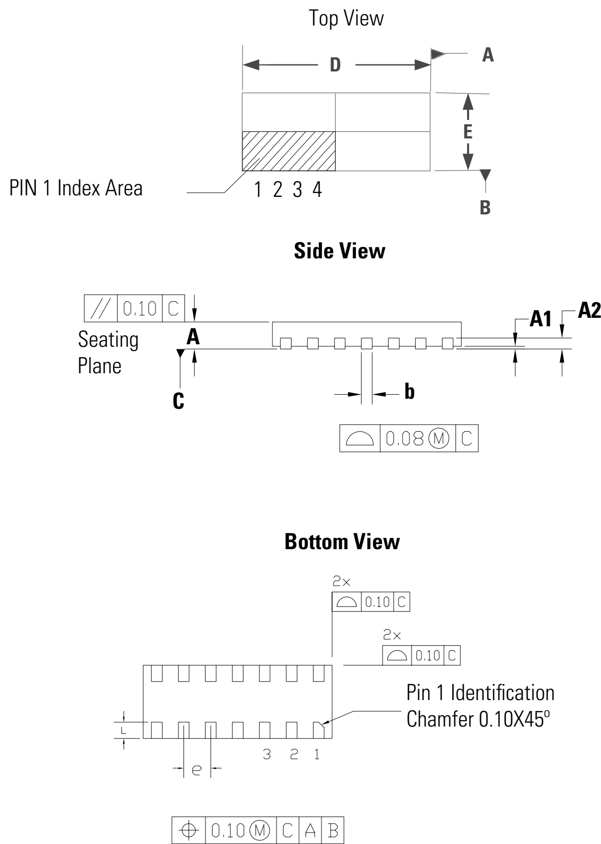
Embossed Carrier Tape & Reel Specification — μDFN-14



Symbol	Millimeters
A0	1.58 ± 0.10
B0	3.73 ± 0.10
D0	0.60 + 0.05
D1	Ø 0.60 + 0.05
E	1.75 ± 0.10
F	5.50 ± 0.05
K0	0.68 ± 0.10
P0	2.00 ± 0.05
P1	4.00 ± 0.10
P2	4.00 ± 0.10
T	0.28 ± 0.02
W	12.00 + 0.30 /- 0.10

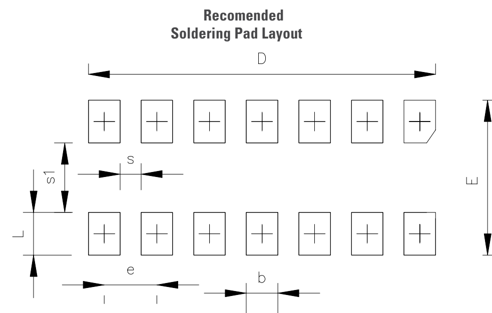
Package Dimensions — μDFN-14 (3.5x1.35x0.5mm)



Package	μDFN-14 (3.5x1.35x0.5mm)					
JEDEC	MO-229					
Symbol	Millimeters			Inches		
	Min	Nom	Max	Min	Nom	Max
A	0.45	0.50	0.55	0.018	0.020	0.022
A1	0.00	0.02	0.05	0.000	0.001	0.002
A2	0.203 Ref			0.008 Ref		
b	0.15	0.20	0.25	0.006	0.008	0.012
D	3.40	3.50	3.60	0.134	0.138	0.142
D2	-	-	-	-	-	-
E	1.25	1.35	1.45	0.050	0.054	0.058
E1	-	-	-	-	-	-
e	0.500 BSC			0.020 BSC		
L	0.25	0.30	0.35	0.010	0.012	0.014

Notes:
1. Dimension and tolerancing comform to ASME Y14.5M-1994.
2. Controlling dimensions: Millimeter. Converted Inch dimensions are not necessarily exact.

Recomended Soldering Pad Layout



Symbol	Millimeter			Inches		
D	3.29	3.30	3.31	0.1295	0.1299	0.1303
E	1.44	1.45	1.46	0.0567	0.0571	0.0575
b	0.29	0.30	0.31	0.0114	0.0118	0.0122
L	0.39	0.40	0.41	0.0154	0.0158	0.0161
e	0.50typ			0.020typ		
s	0.19	0.20	0.21	0.0075	0.0078	0.0083
s1	0.64	0.65	0.66	0.0252	0.0256	0.0260

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