

General Description

The Higgs-3 SOT is a highly integrated single chip UHF RFID Tag IC packaged in a SOT-323 package. The chip conforms to the EP-Cglobal™ Class-1 Gen-2 specification and provides state-of-the-art performance for a broad range of UHF RFID tagging applications. The Higgs-3 IC is implemented in a low cost CMOS process and uses proven and cost effective EEPROM technology. The Higgs-3 SOT is available in industry standard tape & reel rolls.

Pin Configuration

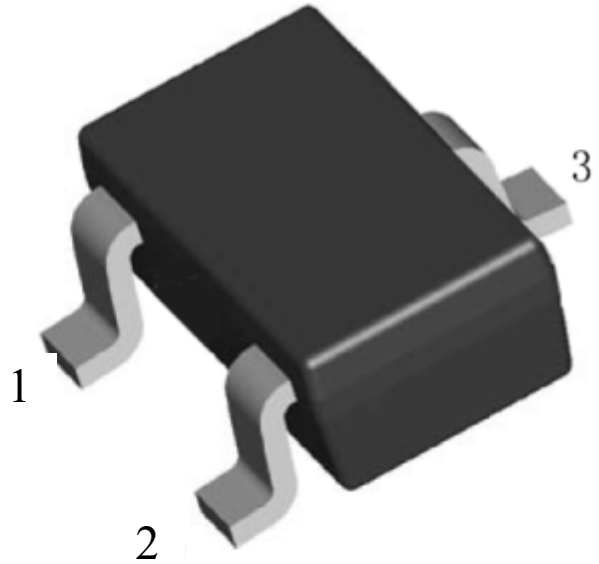


Figure 1

Simplified Applications Diagram





Absolute Maximum Ratings

Absolute maximum ratings are those values beyond which the device could be permanently damaged. Absolute maximum ratings are stress ratings only and functional device operation is not implied. Operating the device beyond the absolute maximum ratings may permanently degrade device performance and/or shorten operating lifetime.

Input Current Across Input Pads.....	10mA
Maximum RF Input Power.....	+20dBm
Power Dissipation.....	100mW
Storage Temperature Range.....	-65°C to 150°C
Assembly Survival Temperature (60s).....	260°C
ESD Immunity (HBM).....	2kV
Moisture Sensitivity Level.....	MSL3

Operating Conditions & Electrical Characteristics

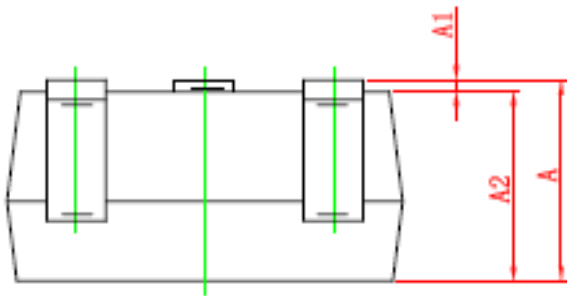
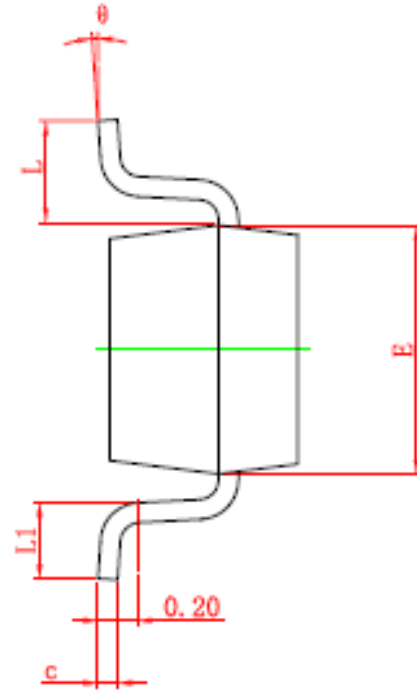
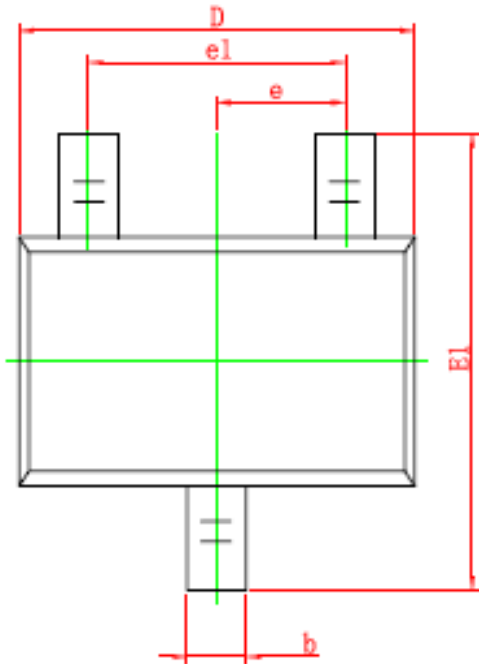
Symbol	Parameter	Conditions / Capability	Min	Typical	Max	Units
Operating Conditions						
T _A	Operating Temp.		-50		+85	°C
f _{in}	Operating Frequency		860		960	MHz
Electrical Characteristics						
S _R	Sensitivity during Read	Reading	-15	-17		dBm
S _P	Sensitivity during Programming	Programming	-6	-10		dBm
R _P	Equivalent Input Parallel Resistance	At -14 dBm Input Power		1500		Ohms
C _P	Equivalent Input Parallel Capacitance	At -14 dBm Input Power		0.9		pF
D _{RET}	Data Retention			10		Years
P _{CYCL}	Programming Cycles	At 25 °C		100,000		Cycles

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Pin Outs

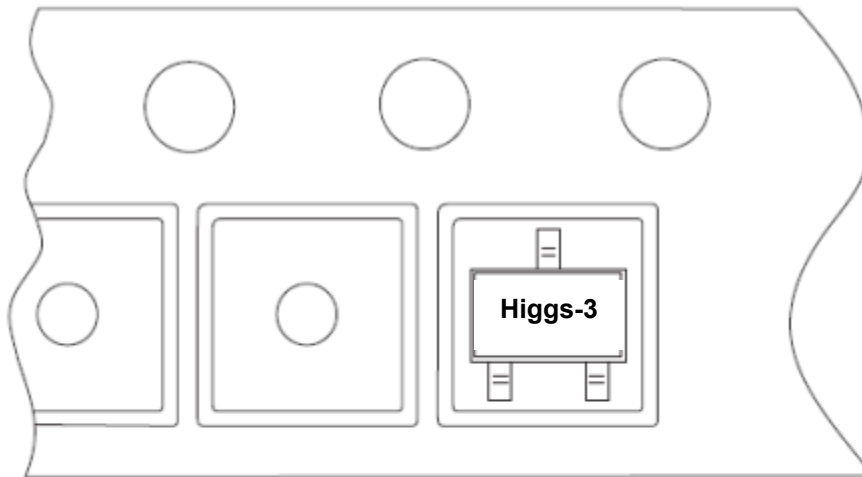
PIN	Name	I/O	Function	Reference
1	RF1	RF	Differential RF input to Higgs-3 IC; RF2 = GND for Single Ended	Figure 1
2	RF2	RF		Figure 1
3	Open	NC	Not Connected	Figure 1

SOT Physical Dimensions



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	0.900	1.100	0.035	0.043
A1	0.000	0.100	0.000	0.004
A2	0.900	1.000	0.035	0.039
b	0.200	0.400	0.008	0.016
c	0.080	0.150	0.003	0.006
D	2.000	2.200	0.079	0.087
E	1.150	1.350	0.045	0.053
E1	2.150	2.450	0.085	0.096
e	0.650 TYP		0.026 TYP	
e1	1.200	1.400	0.047	0.055
L	0.525 REF		0.021 REF	
L1	0.260	0.460	0.010	0.018
theta	0°	8°	0°	8°

SOT-323 Tape & Reel Layout



For more information, including flip-chip data and other design related information, please contact your Alien representative or email Sales@alientechnology.com.

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HANDLING PRECAUTIONS Observe standard handling practices to minimize ESD.

DISCLAIMER Application recommendations are guidelines only - actual results may vary and should be confirmed. This is a general purpose product not designed or intended for any specific application.

This product is covered by one or more of the following U.S. patents: 7967204, 7931063, 7868766, 7737825, 7716208, 7716160, 7688206, 7671720, 7659822, 7619531, 7615479, 7598867, 7580378, 7576656, 7562083, 7561221, 7559486, 7559131, 7554451, 7551141, 7542301, 7542008, 7522055, 7500610, 7489248, 7453705, 7452748, 7425467, 7417306, 7411503, 7385284, 7377445, 7364084, 7353598, 7342490, 7324061, 7321159, 7301458, 7295114, 7288432, 7265675, 7262686, 7193504, 7173528, 7172910, 7172789, 7141176, 7113250, 7101502, 7080444, 7070851, 7068224, 7046328, 6998644, 6988667, 6985361, 6980184, 6970219, 6952157, 6942155, 6933848. Other patents pending.

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