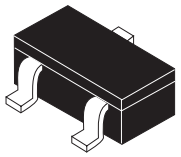
STDD15 series

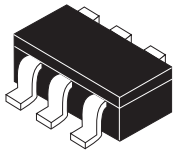
LOW CAPACITANCE DETECTION DIODE

MAIN PRODUCT CHARACTERISTICS

$I_{F(AV)}$	10 mA
V_{RRM}	15 V
Tj (max)	150 °C
V_F (max)	0.51 V



SOT323-3L
STDD15-xxW



SOT323-6L
STDD15-xxS

FEATURES AND BENEFITS

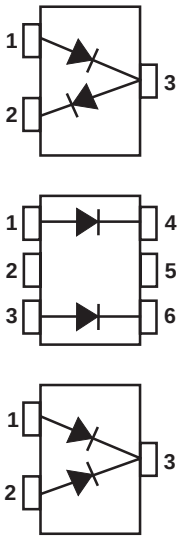
- Low diode capacitance
- Device designed for RF application
- Low profile package
- Available in 3 configurations
- Very low parasitic inductor & resistor

DESCRIPTION

The STDD15 is a dual diode series for the detection of a RF signal and the compensation of the voltage drift with the temperature. The SOT323 package makes the device ideal in application where the space saving is critical like mobile phones.

The low junction capacitance will reduce the disturbance on the RF signal

SCHEMATIC DIAGRAM



Series configuration
STDD15-04W

Parallel configuration
STDD15-07S

Common cathode configuration
STDD15-05W

ABSOLUTE RATINGS (limiting values)

Symbol	Parameter		Value	Unit
V_{RRM}	Repetitive peak reverse voltage		15	V
I_F	Continuous forward current		10	mA
I_{FSM}	Surge non repetitive forward current	tp = 10ms	2	A
T_{stg}	Storage temperature range		- 65 + 150	°C
Tj	Maximum operating junction temperature		150	°C

THERMAL PARAMETERS

Symbol	Parameter	Value	Unit
$R_{th\ (j-a)}$*	Junction to ambient	500	°C/W

***:** Mounted with minimum recommended pad size, PC board FR4.

STATIC ELECTRICAL CHARACTERISTICS

Symbol	Parameter	Tests conditions		Min.	Typ.	Max.	Unit
I_R*	Reverse leakage current	Tj = 25°C	V_R = 1V			0.035	µA
		Tj = 125°C			6	30	
		Tj = 25°C	V_R = 15V			0.23	µA
		Tj = 125°C			10	100	
V_F*	Forward voltage drop	Tj = 25°C	I_F = 1 mA		350	380	mV
		Tj = 125°C			230	260	
		Tj = 25°C	I_F = 10 mA		500	570	
		Tj = 125°C			450	510	

* Pulse test: tp ≤ 250µs, Delta ≤ 2%

ELECTRICAL CHARACTERISTICS

Symbol	Parameter	Tests conditions		Min.	Typ.	Max.	Unit
C	Diode capacitance	V_R = 0 V	F = 1MHz			1.0	pF
R_F	Forward resistance	I_F = 5 mA	F = 100MHz		15		Ω
Ls	Series inductance				1.5		nH

Fig. 1: Forward voltage drop versus forward current (typical values).

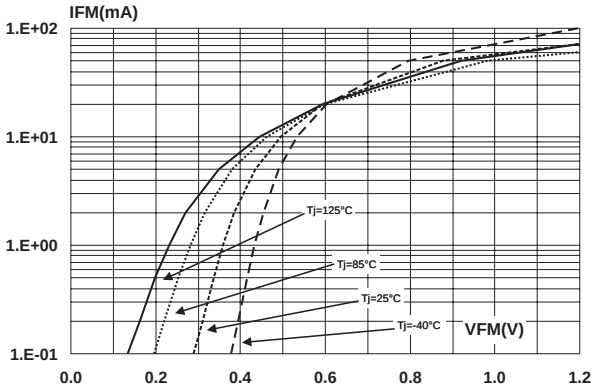


Fig. 2: Reverse leakage current versus reverse voltage applied (typical values).

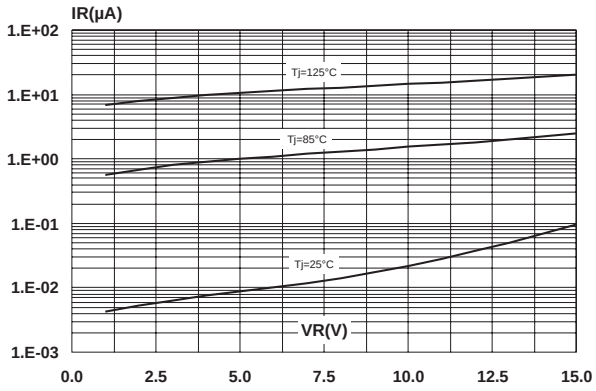


Fig. 3: Differential forward resistance versus forward current (typical values).

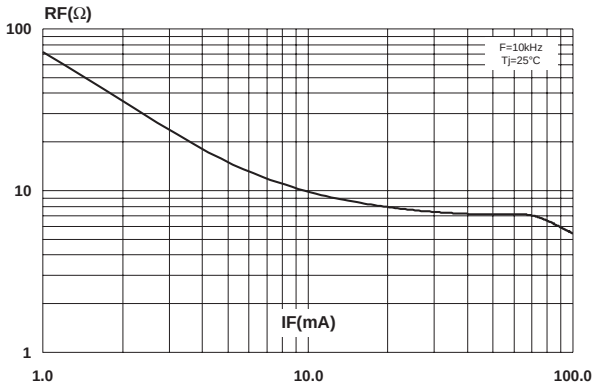


Fig. 4: Junction capacitance versus reverse voltage applied (typical values).

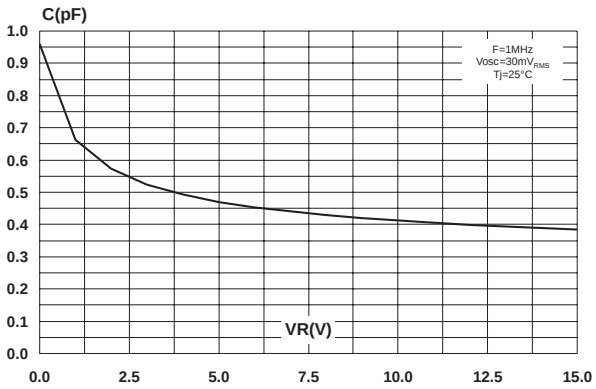


Fig. 5: Variation of thermal impedance junction to ambient versus pulse duration (printed circuit board, epoxy FR4).

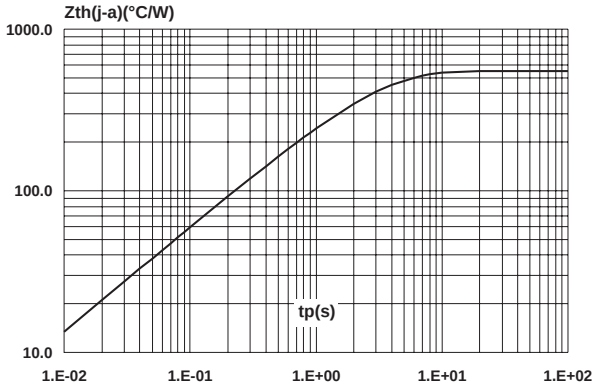
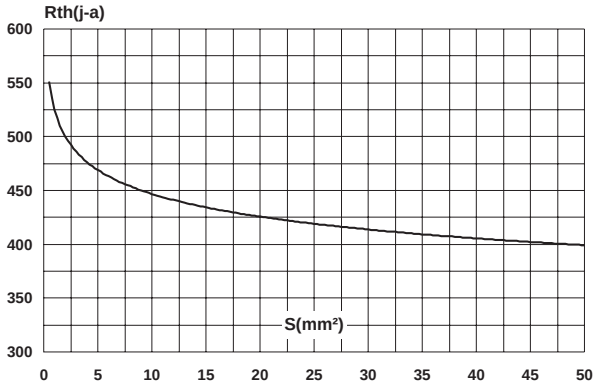


Fig. 6: Thermal resistance junction to ambient versus copper surface under each lead (printed circuit board, epoxy FR4)..

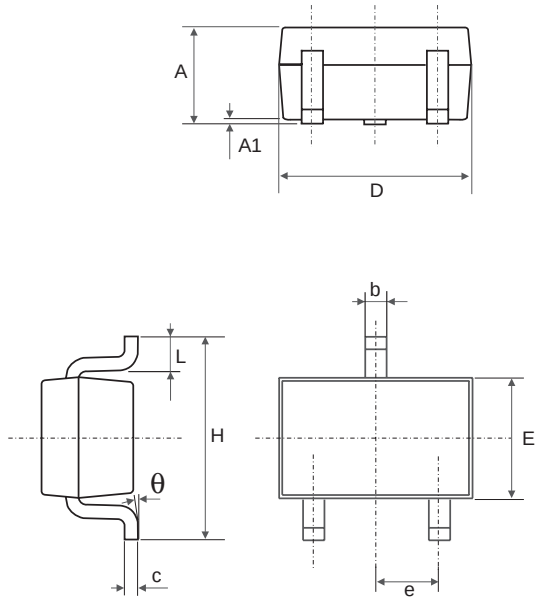


Electrical Model (PSPICE)

Parameter	Value	Unit
Is	2.66 e-8	A
N	1.04	
M	0.772	
Vj	0.65	V
Eg	0.69	eV
Xti	2	
Rs	15	W
Cjo	0.85 e-12	F
Bv	20	V
Ibv	10 e-3	A

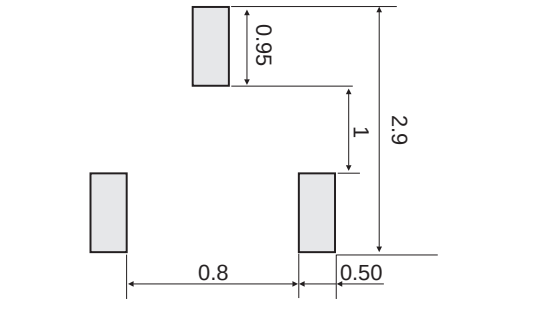
PACKAGE MECHANICAL DATA

SOT323-3L

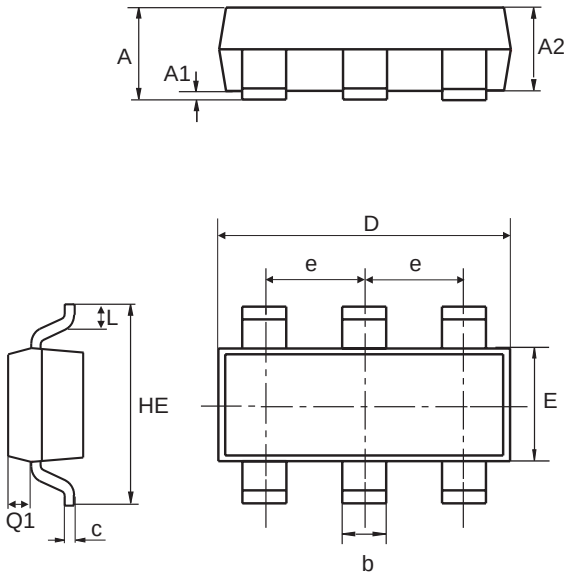


REF.	DIMENSIONS					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	0.8		1.1	0.031		0.043
A1	0.0		0.1	0.0		0.004
b	0.25		0.4	0.010		0.016
c	0.1		0.26	0.004		0.010
D	1.8	2.0	2.2	0.071	0.079	0.086
E	1.15	1.25	1.35	0.045	0.049	0.053
e		0.65			0.026	
H	1.8	2.1	2.4	0.071	0.083	0.094
L	0.1	0.2	0.3	0.004	0.008	0.012
θ	0		30°	0		30°

FOOTPRINT (in millimeters)

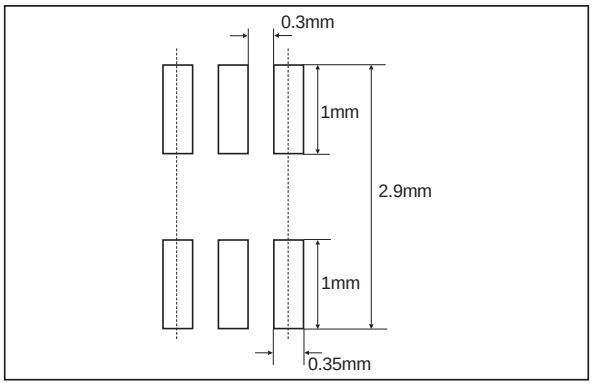


PACKAGE MECHANICAL DATA
SOT323-6L



REF.	DIMENSIONS			
	Millimeters		Inches	
	Min.	Max.	Min.	Max.
A	0.8	1.1	0.031	0.043
A1	0	0.1	0	0.004
A2	0.8	1	0.031	0.039
b	0.15	0.3	0.006	0.012
c	0.1	0.18	0.004	0.007
D	1.8	2.2	0.071	0.086
E	1.15	1.35	0.045	0.053
e	0.65 Typ.		0.025 Typ.	
HE	1.8	2.4	0.071	0.094
Q1	0.1	0.4	0.004	0.016
L	0.1	0.45	0.004	0.018

FOOTPRINT (in millimeters)



Note: The device fulfills the MSL level 1 after leadfree soldering profile.

Ordering code	Marking	Package	Weight	Base qty	Delivery mode
STDD15-04W	24	SOT323-3L	0.006 g	3000	Tape & reel
STDD15-05W	25	SOT323-3L	0.006 g	3000	Tape & reel
STDD15-07S	D25	SOT323-6L	0.006 g	3000	Tape & reel

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