

TPM3810B Series Datasheet

RF PIN limiter diodes

Description

- The TPM3810B series of limiter diodes is designed for use as passive receiver protectors in wireless and other RF systems.
- It has low loss, low distortion and good limiter action.
- The TPM3810B series of diodes has been characterized in limiter circuits and tightly specified to ensure consistent performance.



Features

- Low-distortion design
- Low insertion loss
- Low-cost plastic package



Applications

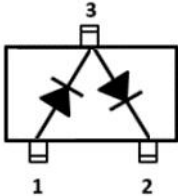
- WLAN, WiMAX
- Cellular infrastructure
- RFID readers
- Test instruments

Observe the precautions for handling electrostatic sensitive device

ESD Machine discharge mode (Class A)

ESD Human body discharge mode (Class 0)

Part Number and Configuration

TPM3810B-16	TPM3810B-03
DFN1006	SOT23
	
Marking: F	Marking: RQ2

Absolute Maximum Ratings, $T_c=+25^{\circ}\text{C}$

Parameter	Symbol	Min	Max	Unit
Reverse voltage	V_R		20	V
Forward current	I_F		100	mA
Operating temperature	T_A	-55	+150	$^{\circ}\text{C}$
Storage temperature	T_{stg}	-55	+150	$^{\circ}\text{C}$

Electrical Specifications, $T_c=+25^{\circ}\text{C}$

Parameter	Symbol	Test condition	Min	Typical	Max	Unit
Series resistance	R_S	$f = 100 \text{ MHz}$, $I_F = 10 \text{ mA}$		2.7		Ω
Capacitance	C_T	0 V, $f = 1 \text{ MHz}$		0.36		pF
Capacitance ratio	C_{TR}	$C_T @ 0 \text{ V} / C_T @ 6 \text{ V}$		1.32		
Carrier lifetime	τ_I	$I_F = 10 \text{ mA}$		25		ns
I region width				2.5		μm
Breakdown voltage	V_R	$I_R = 10 \mu\text{A}$	20	48	50	V
Leakage current	I_R	$V_R = 20 \text{ V}$			20	nA

Typical 1GHz Limiter Performance

Parameter	TPM3810B-03	TPM3810B-16	Test condition
Connection	Parallel	Monotube	
Insertion Loss	0.9 dB	0.4 dB	Input power = 0 dBm
1 dB Compression	+4 dBm	+9 dBm	
Attenuation@ +20 dBm	10.8 dB	6.3 dB	
Attenuation@ +30 dBm	12.6 dB	13 dB	

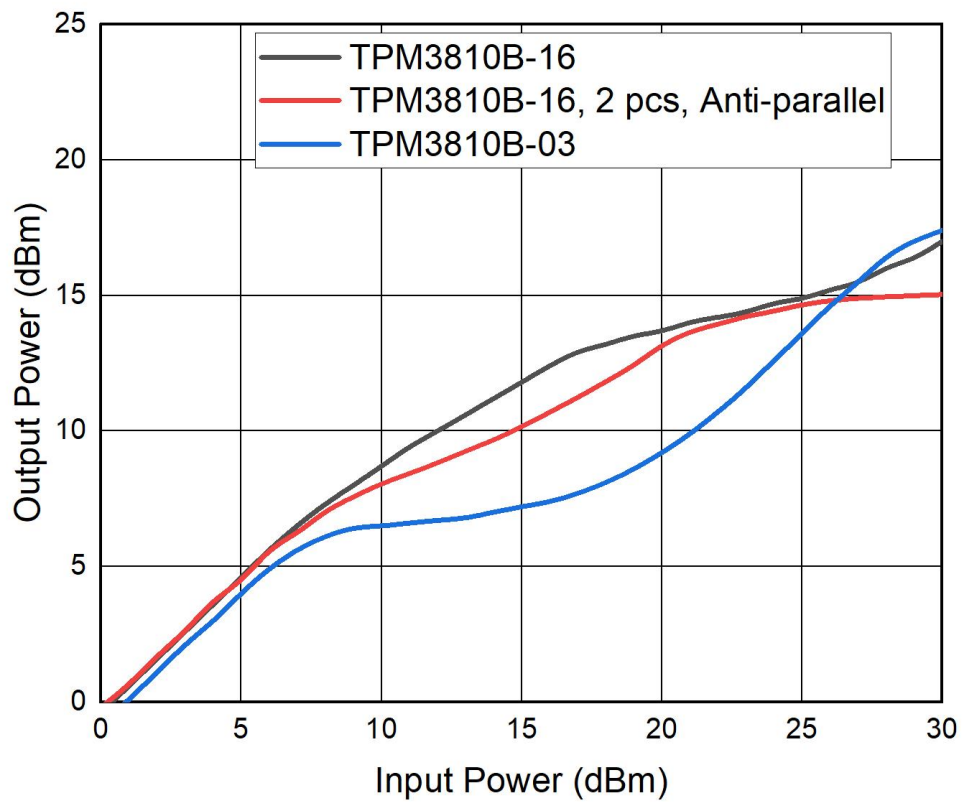
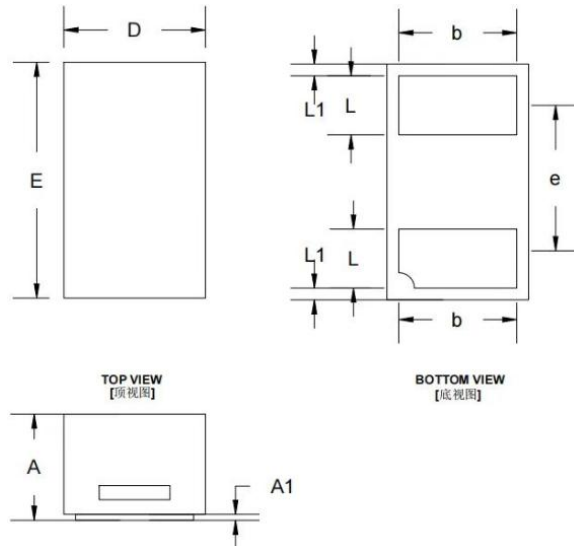


Figure1. Typical 1GHz Limiter Performance

Package Dimension Drawing

DFN1006

Symbol	Dimensions (mm)		
	Min	TYP	Max
A	0.440	0.475	0.500
A1	0.000	0.025	0.050
E	0.950	1.000	1.050
D	0.550	0.600	0.650
b	0.450	0.500	0.550
e		0.650BSC	
L	0.200	0.250	0.300
L1	0.050REF		



SOT-23

Symbol	Dimensions (mm)		
	Min	TYP	Max
A	2.800	2.900	3.000
B	0.300	0.400	0.500
C	2.250	2.400	2.550
D	1.200	1.300	1.400
E	1.800	1.900	2.000
F	0.550 REF		
G	0.080	0.115	0.150
H	0.000	0.050	0.100
I	0.900	1.000	1.100

