

## TPM2860 Series Datasheet

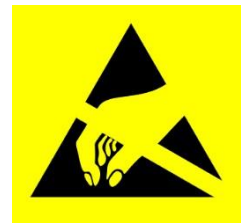
### Radio Frequency Schottky Detection Diode

#### Descriptions

- DNmicron's TPM2860 series have good RF application performance
- Used as DC bias detector diode
- The series of detection diodes could be packaged in a variety of formats, we assure that when two or more diodes are mounted into a single surface mount package, they are taken from adjacent sites on the wafer, assuring the highest possible degree of match.

#### Features

- Multi packages SOD-523, SOT-23, SOT-143
- High detection sensitivity
- Tape and Reel Options Available
- Pb-free (RoHS compliant) package
- High matching of dual diode in package
- Better thermal conductivity for high power dissipation

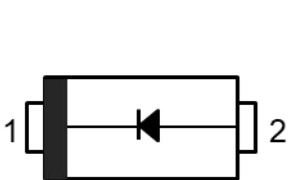
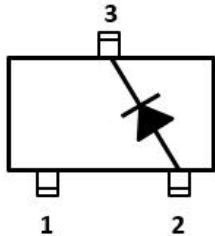
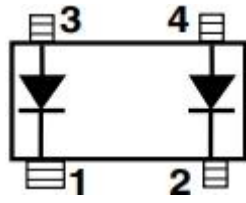
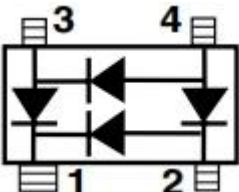
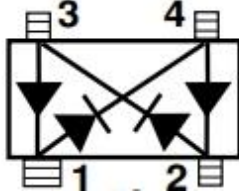
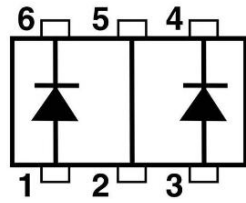


Observe precautions for handling electrostatic sensitive devices.

ESD Machine Model (Class A)

ESD Human Body Model (Class 0)

#### Package Identification (Top View)

TPM2860C -01 SOD-523 Package	TPM2860C -02 SOT-23 Package	TPM2860C -05 SOT-143 Package
		
TPM2860C -08 SOT-143 Package	TPM2860C -09 SOT-143 Package	TPM2860E -06 SOT-363 Package
		

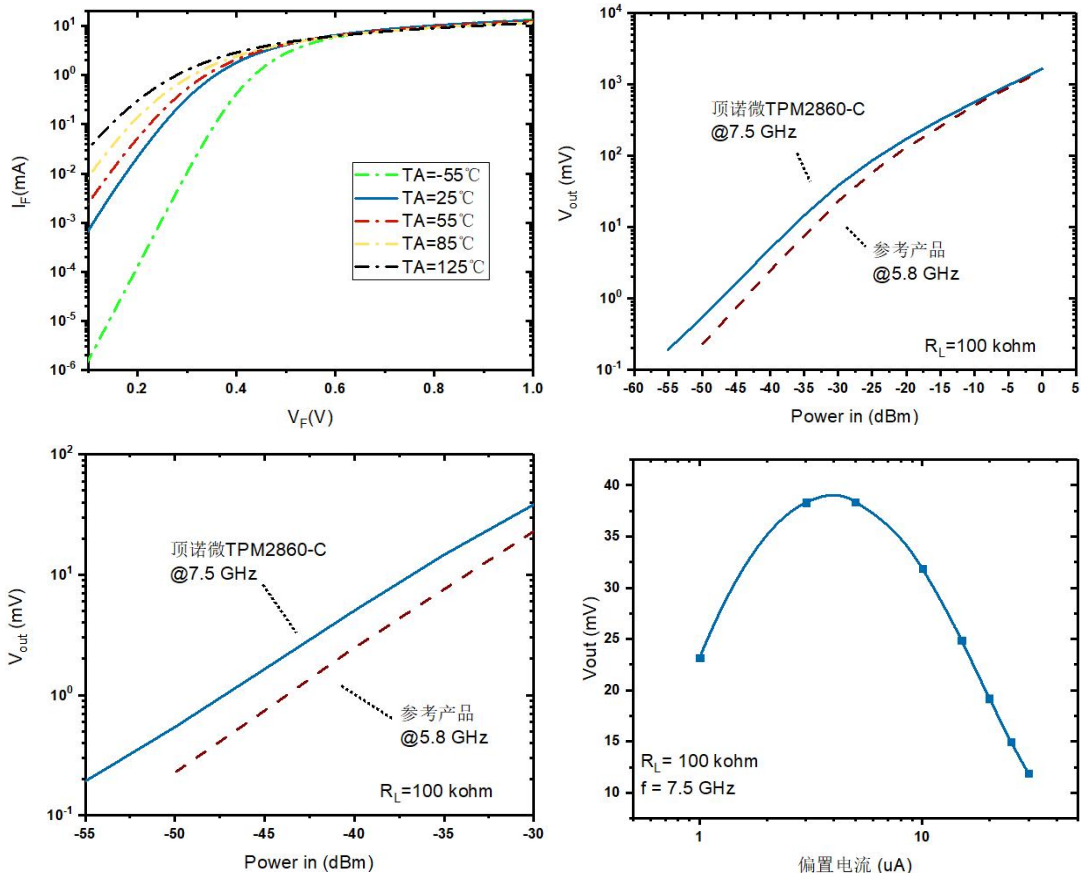
### Direct Current Specifications at $T_c=+25^\circ\text{C}$ , unless otherwise specified

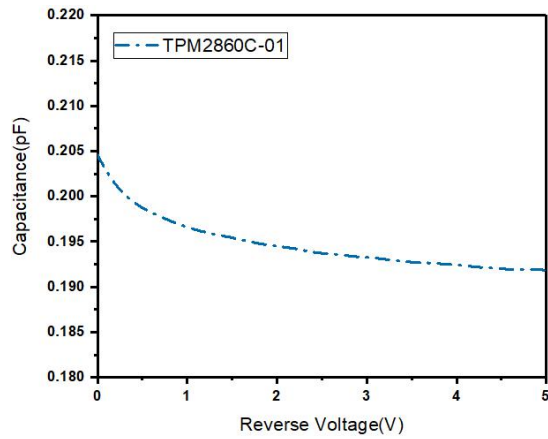
Parameter	Symbol	Condition	min.	typ.	max.
Breakdown Voltage	$V_{BD}$	$I_R = -10 \mu\text{A}$	5 V	10 V	-
Reverse Leakage Current	$I_R$	$V_R = -3 \text{ V}$	-	80 nA	200 nA
Cut-in Voltage	$V_F$	$I_F = 1 \text{ mA}$	-	358 mV	-
Forward Voltage Drop	$V_{I0\text{mA}}$	$I_F = 10 \text{ mA}$	-	0.9 V	-
Capacitance	$C_T$	$V_R = 0 \text{ V}$ , $f = 1 \text{ MHz}$	-	0.20 pF	0.28 pF

### Radio Frequency Electrical Specifications at $T_c = +25^\circ\text{C}$ , unless otherwise specified

Parameter	Symbol	Condition ( $f=7.5 \text{ GHz}$ )	typ.
Voltage-sensitivity	$g$	Input power = -30 dBm, $R_L = 100 \text{ K}\Omega$ , $I_b = 3 \mu\text{A}$	32 mV/ $\mu\text{W}$
Video Resistance	$R_V$	$I_b = 5 \mu\text{A}$	6.5 k $\Omega$

### Typical performance



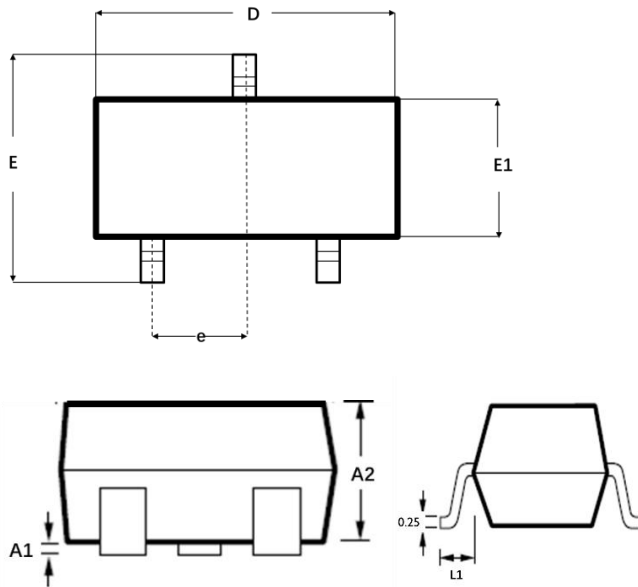


**Typical Scattering Parameter S11 (No DC Bias, PowerIn=-30 dBm, T<sub>c</sub>=+25°C)**

Freq GHz	0.7	0.8	0.9	1	1.1	1.2	1.3	1.4
MAG	0.992	0.998	0.998	0.997	0.996	0.998	0.997	0.998
PHASE	-14.5	-19.0	-21.8	-24.1	-25.6	-27.0	-29.8	-33.6
Freq GHz	1.5	1.6	1.7	1.8	1.9	2	2.1	2.2
MAG	0.996	0.994	0.994	0.999	0.997	0.994	0.998	0.995
PHASE	-34.2	-37.4	-39.1	-40.8	-43.4	-45.9	-49.6	-49.2
Freq GHz	2.3	2.4	2.5	2.6	2.7	2.8	2.9	3
MAG	0.999	0.998	0.996	0.993	0.999	0.998	0.992	0.999
PHASE	-54.4	-57.4	-58.0	-60.4	-64.6	-66.4	-70.1	-71.7
Freq GHz	3.1	3.2	3.3	3.4	3.5	3.6	3.7	
MAG	0.996	0.996	0.999	0.998	0.998	0.999	0.993	
PHASE	-74.0	-79.6	-80.9	-83.1	-86.6	-90.9	-93.5	

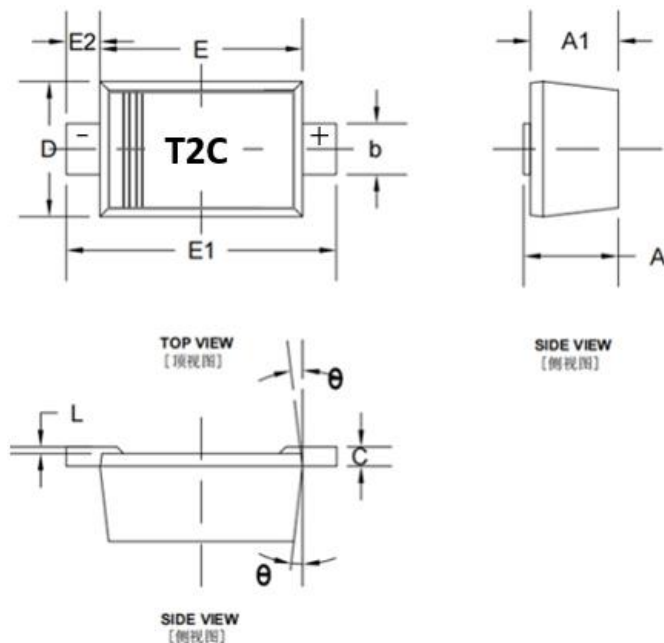
## Package Outline

### SOT-23



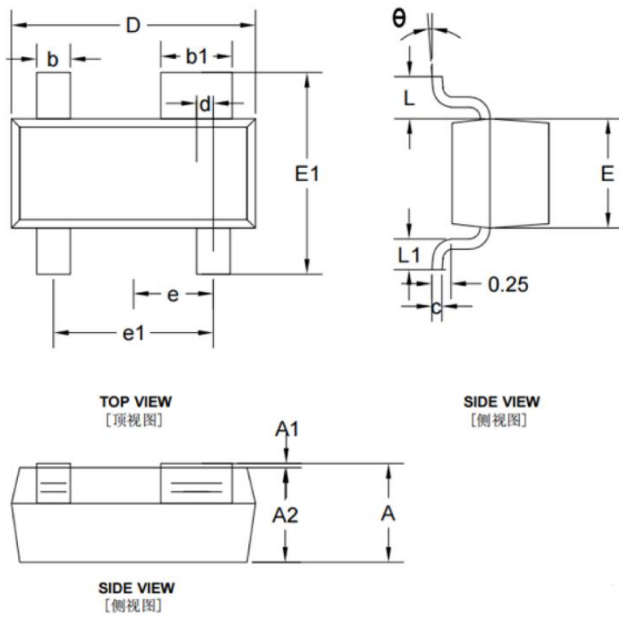
Symbol	Measure (mm)	
	Min	Max
A1	0.04	0.10
A2	1.00	1.20
D	2.82	3.02
E	2.60	3.00
E1	1.50	1.70
e	0.95BSC	
L1	0.60REF	

### SOD-523



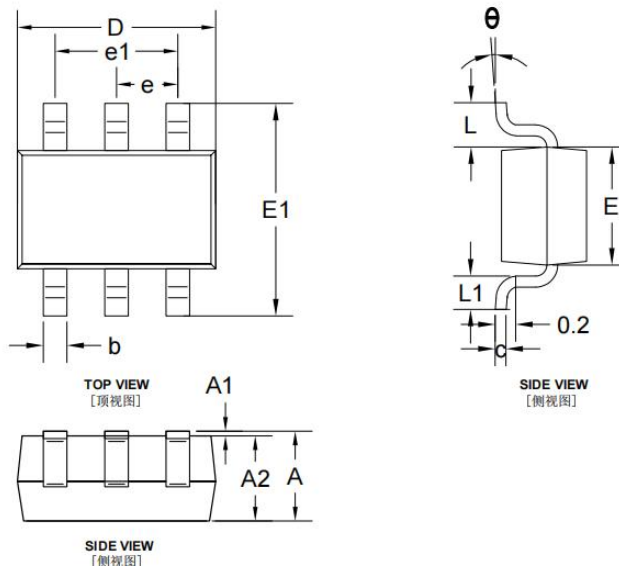
Symbol	Measure (mm)		
	Min	Typ	Max
A	0.460	0.560	0.660
A1	0.450	0.550	0.650
b	0.250	0.300	0.350
c	0.080	0.115	0.150
D	0.750	0.800	0.850
E	1.100	1.200	1.300
E1	1.500	1.600	1.700
E2	0.200REF		
L	0.010	0.040	0.070

### SOT-143



Symbol	Measure (mm)		
	Min	Typ	Max
A	0.950	1.125	1.300
A1	0.000	0.050	0.100
A2	0.900	1.050	1.200
b	0.300	0.400	0.500
b1	0.750	0.850	0.950
c	0.080	0.115	0.150
D	2.800	2.900	3.000
d	0.200TYP		
E	1.200	1.300	1.400
E1	2.250	2.400	2.550
e	0.950TYP		
e1	1.800	1.900	2.000
L	0.550TYP		
L1	0.300	0.400	0.500
$\theta$	0°	4°	8°

### SOT-363



Symbol	Measure (mm)		
	Min	Typ	Max
A	0.850	0.950	1.050
A1	0.000	0.050	0.100
A2	0.850	0.900	0.950
b	0.150	0.250	0.350
c	0.080	0.115	0.150
D	2.000	2.100	2.200
E	1.150	1.250	1.350
E1	2.000	2.250	2.450
e	0.650TYP		
e1	1.200	1.300	1.400
L	0.525TYP		
L1	0.260	0.360	0.460
$\theta$	0°	4°	8°