Bay Linear

Inspire the Linear Power

Surface Mount Zero Bias Schottky Detector Diodes

B8220 Series

Description

This specific line of Schottky diodes were specifically designed for both digital and analog applications. This series includes a wide range of specifications and package configurations which gives the designer wide flexibility. General applications of these Schottky diodes are clamping, mixing, detecting, sampling, switching, and wave shaping. The B822x series of diodes is the best general all-purpose diode for most applications, featuring low series resistance, low forward voltage at all current levels and desired RF characteristics.

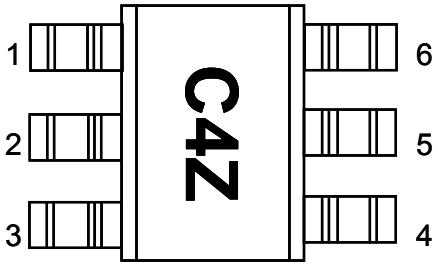
At Bay Linear, our commitment to quality components gives our customers a reliable source of RF products, which are tested at a more stringent level than our competitors. Manufacturing techniques assure that when two diodes are mounted into a single package they are taken from adjacent sites on the wafer. In cross referenced parts, we guarantee pin to pin compatibility. The various package configurations available provide a low cost solution to a wide variety of design problems.

Features

- **Low FIT (Failure in Time) Rate***
- **Low Turn-On Voltage (As Low as 0.34 V at 1 mA)**
- **Six-sigma Quality Level**
- **Single, Dual and Quad Versions**
- **Unique Configurations in Surface Mount SOT-23/143 Package**
- **B-282K Grounded Center Leads Provide up to 10 dB Higher Isolation**
- **Matched Diodes for Consistent Performance**
- **High Thermal Conductivity for greater Power**

Pin Connection

Pin Connections and Package Marking

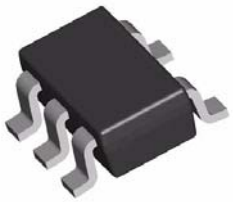


Notes:

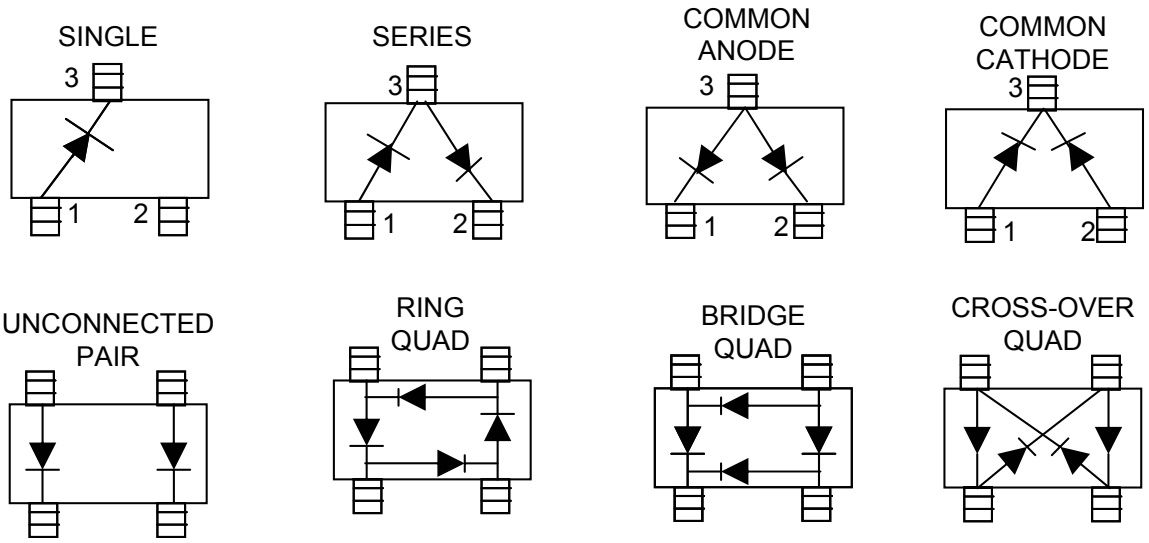
1. Package marking provides orientation and identification
2. See “Electrical Specifications” for appropriate package marking

Ordering Information

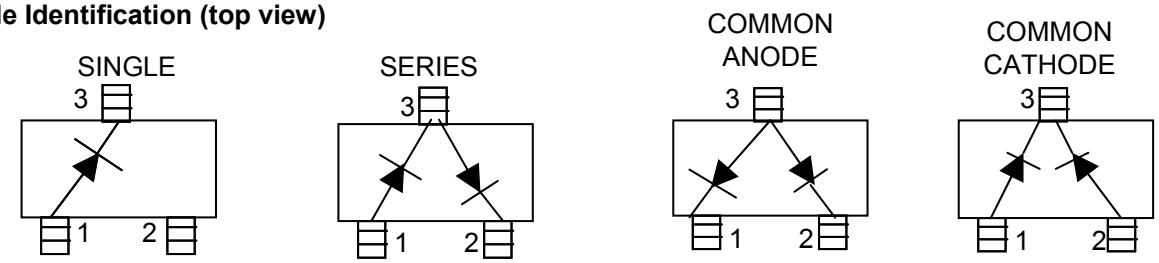
Package	Part No.
SOT-26	B822XK6 -X.X



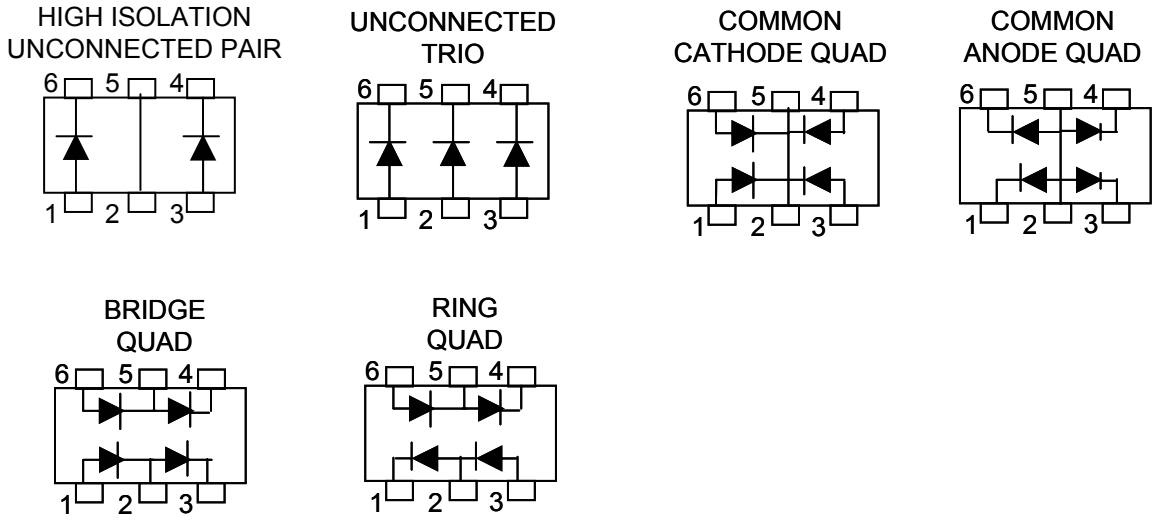
SOT-23/SOT-143 Package
Lead Code Identification (top view)



SOT-323 Package Lead
Code Identification (top view)



SOT-363 Package 6 Lead
Code Identification (top view)



Absolute Maximum Ratings

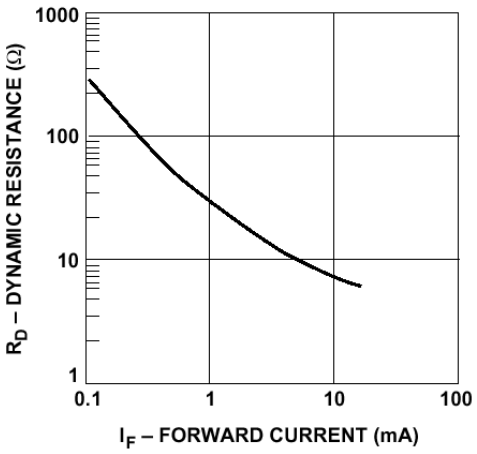
Parameter	Symbol	SOT-23/143	SOT-223	Units
Peak Inverse Voltage	P_{IV}	15	15	V
Junction Temperature	T_J	150	150	°C
Storage Temperature	T_{STG}	-65 to 150	-65 to 150	°C
Forward Current (1µs Pulse)	I_F	1	1	Amp
Thermal Resistance[2]	θjc	500	150	°C/W

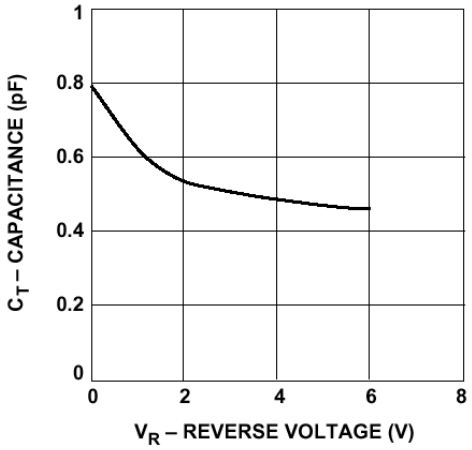
Electrical Characteristics (T_C = 25°C, Single Diode)

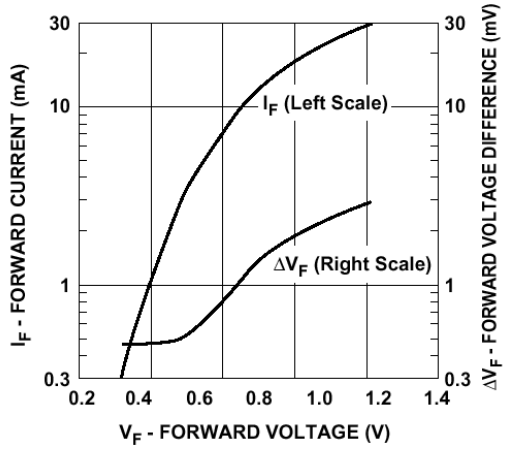
Part No.	Package Marking	Configuration	Min. V_{BR}(V)	Max. V_F(mV)	Max VF (mV) @ IF (mA)	Max IR (nA) @ VR (V)	Max CT (pF)	Typ. RD (Ohms
8220	0	Single	15	340	0.5 10	100 1	1.0	12
8221	1	Single						
8222	2	Series						
8223	3	Common Anode						
8224	4	Common Cathode						
8225	5	Unconnected Pair						
8226	6	Series						
8227	7	Ring Quad						
8228	8	Bridge Quad						
8229	9	Cross-Over Quad						
822E	E	Common Anode						
822F	F	Common Cathode						
822K	K	High Isolation Unconnected Pair						
822L	L	Unconnected Trio						
822M	M	Common Cathode Quad						
822N	N	Common Anode Quad						
822P	P	Bridge Quad						
822R	R	Ring Quad						
Test Conditions			IR=100 µA	IF=1.0 mA			VF= 0 V F=1 MHz	IF= 5 mA

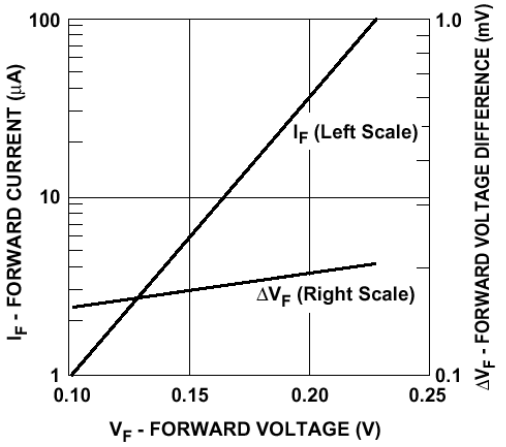
Notes:

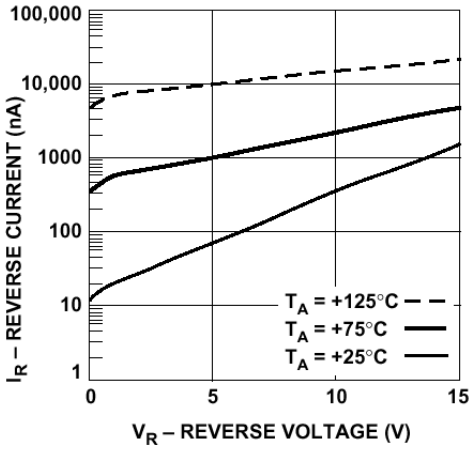
1. Operation in excess of any one of these conditions may result in permanent damage to the device
2. TC = +25°C, where TC is defined to be the temperature at the package pins where contact is made to the circuit board.

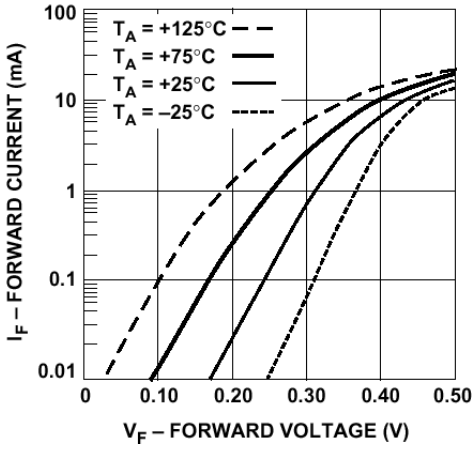

1000
100
10
1
0.1
1
10
100
R_D – DYNAMIC RESISTANCE (Ω)
I_F – FORWARD CURRENT (mA)

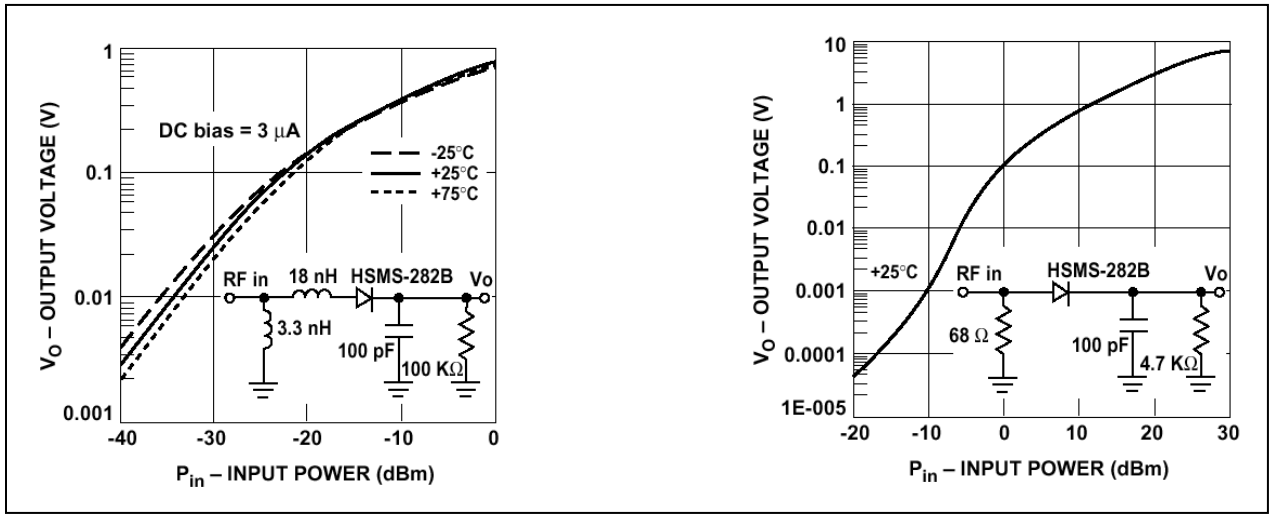

1
0.8
0.6
0.4
0.2
0
0
2
4
6
8
C_T – CAPACITANCE (pF)
V_R – REVERSE VOLTAGE (V)


30
10
1
0.3
0.2
0.4
0.6
0.8
1.0
1.2
1.4
I_F (Left Scale)
ΔV_F (Right Scale)
I_F - FORWARD CURRENT (mA)
ΔV_F - FORWARD VOLTAGE DIFFERENCE (mV)
V_F - FORWARD VOLTAGE (V)


100
10
1
0.10
0.15
0.20
0.25
1.0
0.1
I_F (Left Scale)
ΔV_F (Right Scale)
I_F - FORWARD CURRENT (μA)
ΔV_F - FORWARD VOLTAGE DIFFERENCE (mV)
V_F - FORWARD VOLTAGE (V)


100,000
10,000
1000
100
10
1
0
5
10
15
T_A = +125°C
T_A = +75°C
T_A = +25°C
I_R – REVERSE CURRENT (nA)
V_R – REVERSE VOLTAGE (V)


100
10
1
0.1
0.01
0
0.10
0.20
0.30
0.40
0.50
T_A = +125°C
T_A = +75°C
T_A = +25°C
T_A = –25°C
I_F – FORWARD CURRENT (mA)
V_F – FORWARD VOLTAGE (V)



Cross Reference Guide

BAY LINEAR PART NUMBER	AGILENT PART NUMBER
B8220	HSMS2820
B8221	HSMS 282B
B8222	HSMS 2822
B8223	HSMS 2823
B8224	HSMS 2824
B8225	HSMS 2825
B8226	HSMS 282C
B8227	HSMS 2827
B8228	HSMS 2828
B8229	HSMS 2829
B822E	HSMS 282E
B822F	HSMS 282F
B822K	HSMS 282K
B822L	HSMS 282L
B822M	HSMS 282M
B822N	HSMS 282N
B822P	HSMS 282P
B822R	HSMS 282R

Advance Information- These data sheets contain descriptions of products that are in development. The specifications are based on the engineering calculations, computer simulations and/ or initial prototype evaluation.

Preliminary Information- These data sheets contain minimum and maximum specifications that are based on the initial device characterizations. These limits are subject to change upon the completion of the full characterization over the specified temperature and supply voltage ranges.

The application circuit examples are only to explain the representative applications of the devices and are not intended to guarantee any circuit design or permit any industrial property right to other rights to execute. Bay Linear takes no responsibility for any problems related to any industrial property right resulting from the use of the contents shown in the data book. Typical parameters can and do vary in different applications. Customer's technical experts must validate all operating parameters including " Typical" for each customer application.

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