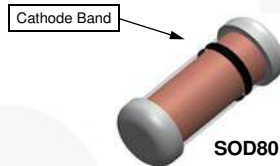


## FLZ2V2 - FLZ39V Zener Diodes



Color Band Marking	
Tolerance	1st Band
A	Black
B	Black
C	Black
D	Black

### Ordering Information

Device Marking	Device	Package	Reel Size	Tape Width	Quantity
Color Band Marking Per Tolerance	Refer to Product table list	SOD-80	7"	8 mm	2,500

### Absolute Maximum Ratings<sup>(1)</sup>

Stresses exceeding the absolute maximum ratings may damage the device. The device may not function or be operable above the recommended operating conditions and stressing the parts to these levels is not recommended. In addition, extended exposure to stresses above the recommended operating conditions may affect device reliability. The absolute maximum ratings are stress ratings only. Values are at  $T_A = 25^\circ\text{C}$  unless otherwise noted.

Symbol	Parameter	Value	Units
$P_D$	Power Dissipation	500	mW
$T_{STG}$	Storage Temperature Range	-65 to +175	$^\circ\text{C}$
$T_J$	Junction Operating Temperature Range	-65 to +175	$^\circ\text{C}$
$I_{ZM}$	Maximum Regulator Current	$P_D/V_Z$	mA

**Note:**

1. These ratings are limiting values above which the serviceability of the diode may be impaired.

### Thermal Characteristics<sup>(2)</sup>

Symbol	Parameter	Value	Unit
$R_{\theta JA}$	Thermal Resistance, Junction to Ambient	300	$^\circ\text{C/W}$

**Note:**

2. Device mounted on FR-4 PCB with  $3'' \times 4.5'' \times 0.06$  with only signal trace.

### Electrical Characteristics

Values are at  $T_A=25^\circ\text{C}$  unless otherwise noted.

Symbol	Parameter / Test condition	Min.	Typ.	Max.	Unit
$V_F$	Forward Voltage / $I_F=200\text{ mA}$			1.2	V

**Electrical Characteristics** Values are at  $T_A = 25^\circ\text{C}$  unless otherwise noted.

Product Group	Product Name	$V_Z^{(3)} (V) @ I_{ZT}$			$Z_{ZT}(\Omega) @ I_{ZT}$	$I_{ZT} (mA)$	$Z_{ZK}(\Omega) @ I_{ZK}$	$I_{ZK} (mA)$	$I_R(\mu A) @ V_R$	$V_R(V)$
		Min.	Typ.	Max.	Max.	-	Max.	-	Max	-
FLZ2V2	FLZ2V2A	2.12	2.21	2.30	35	20	400	1	55	0.7
	FLZ2V2B	2.22	2.32	2.41	35	20	400	1	55	0.7
FLZ2V4	FLZ2V4A	2.33	2.42	2.52	35	20	400	1	84	1
	FLZ2V4B	2.43	2.53	2.63	35	20	400	1	84	1
FLZ2V7	FLZ2V7A	2.54	2.64	2.75	35	20	450	1	70	1
	FLZ2V7B	2.69	2.80	2.91	35	20	450	1	70	1
FLZ3V0	FLZ3V0A	2.85	2.96	3.07	35	20	450	1	35	1
	FLZ3V0B	3.01	3.12	3.22	35	20	450	1	35	1
FLZ3V3	FLZ3V3A	3.16	3.27	3.38	35	20	450	1	14	1
	FLZ3V3B	3.32	3.43	3.53	35	20	450	1	14	1
FLZ3V6	FLZ3V6A	3.455	3.57	3.695	48	20	850	1	2.8	1
	FLZ3V6B	3.60	3.73	3.845	48	20	850	1	2.8	1
FLZ3V9	FLZ3V9A	3.74	3.88	4.01	40	20	850	1	1.4	1
	FLZ3V9B	3.89	4.03	4.16	40	20	850	1	1.4	1
FLZ4V3	FLZ4V3A	4.04	4.15	4.29	32	20	850	1	0.47	1
	FLZ4V3B	4.17	4.30	4.43	32	20	850	1	0.47	1
	FLZ4V3C	4.30	4.44	4.57	32	20	850	1	0.47	1
FLZ4V7	FLZ4V7A	4.44	4.56	4.68	21	20	770	1	0.19	1
	FLZ4V7B	4.55	4.68	4.80	21	20	770	1	0.19	1
	FLZ4V7C	4.68	4.81	4.93	21	20	770	1	0.19	1
FLZ5V1	FLZ5V1A	4.81	4.94	5.07	17	20	685	1	0.19	1.5
	FLZ5V1B	4.94	5.08	5.20	17	20	685	1	0.19	1.5
	FLZ5V1C	5.09	5.23	5.37	17	20	685	1	0.19	1.5
FLZ5V6	FLZ5V6A	5.28	5.41	5.55	10.5	20	425	1	0.75	2.5
	FLZ5V6B	5.45	5.58	5.73	10.5	20	425	1	0.75	2.5
	FLZ5V6C	5.61	5.76	5.91	10.5	20	425	1	0.75	2.5
FLZ6V2	FLZ6V2A	5.78	5.94	6.09	8.5	20	255	1	3.3	3
	FLZ6V2B	5.96	6.12	6.27	8.5	20	255	1	3.3	3
	FLZ6V2C	6.12	6.28	6.44	8.5	20	255	1	3.3	3
FLZ6V8	FLZ6V8A	6.29	6.45	6.63	6.6	20	123	0.5	1.1	3.5
	FLZ6V8B	6.49	6.66	6.83	6.6	20	123	0.5	1.1	3.5
	FLZ6V8C	6.66	6.83	7.01	6.6	20	123	0.5	1.1	3.5
FLZ7V5	FLZ7V5A	6.85	7.04	7.22	6.6	20	95	0.5	0.3	4.0
	FLZ7V5B	7.07	7.26	7.45	6.6	20	95	0.5	0.3	4.0
	FLZ7V5C	7.29	7.49	7.67	6.6	20	95	0.5	0.3	4.0
FLZ8V2	FLZ8V2A	7.53	7.73	7.92	6.6	20	95	0.5	0.3	5
	FLZ8V2B	7.78	7.99	8.19	6.6	20	95	0.5	0.3	5
	FLZ8V2C	8.03	8.24	8.45	6.6	20	95	0.5	0.3	5

**Electrical Characteristics** (Continued) Values are at  $T_A = 25^\circ\text{C}$  unless otherwise noted.

Product Group	Product Name	$V_Z^{(3)} (V) @ I_{ZT}$			$Z_{ZT}(\Omega) @ I_{ZT}$	$I_{ZT} (mA)$	$Z_{ZK}(\Omega) @ I_{ZK}$	$I_{ZK} (mA)$	$I_R(\mu A) @ V_R$	$V_R(V)$
		Min.	Typ.	Max.	Max.	-	Max.	-	Max	-
FLZ9V1	FLZ9V1A	8.29	8.51	8.73	6.6	20	95	0.5	0.3	6
	FLZ9V1B	8.57	8.80	9.01	6.6	20	95	0.5	0.3	6
	FLZ9V1C	8.83	9.09	9.30	6.6	20	95	0.5	0.3	6
FLZ10V	FLZ10VA	9.12	9.39	9.59	6.6	20	95	0.5	0.11	7
	FLZ10VB	9.41	9.69	9.90	6.6	20	95	0.5	0.11	7
	FLZ10VC	9.70	10.06	10.20	6.6	20	95	0.5	0.11	7
FLZ11V	FLZ11VA	10.18	10.41	10.71	8.5	10	95	0.5	0.133	8
	FLZ11VB	10.50	10.73	11.05	8.5	10	95	0.5	0.133	8
	FLZ11VC	10.82	11.04	11.38	8.5	10	95	0.5	0.133	8
FLZ12V	FLZ12VA	11.13	11.38	11.71	9.5	10	95	0.5	0.133	9
	FLZ12VB	11.44	11.71	12.03	9.5	10	95	0.5	0.133	9
	FLZ12VC	11.74	12.05	12.35	9.5	10	95	0.5	0.133	9
FLZ13V	FLZ13VA	12.11	12.45	12.75	11.4	10	95	0.5	0.133	10
	FLZ13VB	12.55	12.87	13.21	11.4	10	95	0.5	0.133	10
	FLZ13VC	12.99	13.33	13.66	11.4	10	95	0.5	0.133	10
FLZ15V	FLZ15VA	13.44	13.79	14.13	13.3	10	95	0.5	0.133	11
	FLZ15VB	13.89	14.26	14.62	13.3	10	95	0.5	0.133	11
	FLZ15VC	14.35	14.72	15.09	13.3	10	95	0.5	0.133	11
FLZ16V	FLZ16VA	14.80	15.19	15.57	15.2	10	132	0.5	0.133	12
	FLZ16VB	15.25	15.65	16.04	15.2	10	132	0.5	0.133	12
	FLZ16VC	15.69	16.14	16.51	15.2	10	132	0.5	0.133	12
FLZ18V	FLZ18VA	16.22	16.70	17.06	19.4	10	123	0.5	0.133	13
	FLZ18VB	16.82	17.29	17.70	19.4	10	123	0.5	0.133	13
	FLZ18VC	17.42	17.90	18.33	19.4	10	123	0.5	0.133	13
FLZ20V	FLZ20VA	18.02	18.52	18.96	23.5	10	170	0.5	0.133	15
	FLZ20VB	18.63	19.13	19.59	23.5	10	170	0.5	0.133	15
	FLZ20VC	19.23	19.80	20.22	23.5	10	170	0.5	0.133	15
	FLZ20VD	19.72	20.30	20.72	23.5	10	170	0.5	0.133	15
FLZ22V	FLZ22VA	20.15	20.66	21.20	25.6	5	170	0.5	0.133	17
	FLZ22VB	20.64	21.21	21.71	25.6	5	170	0.5	0.133	17
	FLZ22VC	21.08	21.66	22.17	25.6	5	170	0.5	0.133	17
	FLZ22VD	21.52	22.15	22.63	25.6	5	170	0.5	0.133	17
FLZ24V	FLZ24VA	22.05	22.69	23.18	29.0	5	170	0.5	0.133	19
	FLZ24VB	22.61	23.24	23.77	29.0	5	170	0.5	0.133	19
	FLZ24VC	23.12	23.78	24.31	29.0	5	170	0.5	0.133	19
	FLZ24VD	23.63	24.31	24.85	29.0	5	170	0.5	0.133	19

**Electrical Characteristics** (Continued) Values are at  $T_A = 25^\circ\text{C}$  unless otherwise noted.

Product Group	Product Name	$V_Z^{(3)} (V) @ I_{ZT}$			$Z_{ZT}(\Omega) @ I_{ZT}$	$I_{ZT} (mA)$	$Z_{ZK}(\Omega) @ I_{ZK}$	$I_{ZK} (mA)$	$I_R(\mu A) @ V_R$	$V_R(V)$
		Min.	Typ.	Max.	Max.	-	Max.	-	Max	-
FLZ27V	FLZ27VA	24.26	24.89	25.52	38	5	210	0.5	0.133	21
	FLZ27VB	24.97	25.62	26.26	38	5	210	0.5	0.133	21
	FLZ27VC	25.63	26.29	26.95	38	5	210	0.5	0.133	21
	FLZ27VD	26.29	26.97	27.64	38	5	210	0.5	0.133	21
FLZ30V	FLZ30VA	26.99	27.69	28.39	46	5	210	0.5	0.133	23
	FLZ30VB	27.70	28.41	29.13	46	5	210	0.5	0.133	23
	FLZ30VC	28.36	29.09	29.82	46	5	210	0.5	0.133	23
	FLZ30VD	29.02	29.77	30.51	46	5	210	0.5	0.133	23
FLZ33V	FLZ33VA	29.68	30.45	31.22	55	5	210	0.5	0.133	25
	FLZ33VB	30.32	31.10	31.88	55	5	210	0.5	0.133	25
	FLZ33VC	30.90	31.70	32.50	55	5	210	0.5	0.133	25
	FLZ33VD	31.49	32.30	33.11	55	5	210	0.5	0.133	25
FLZ36V	FLZ36VA	32.14	32.96	33.79	63	5	210	0.5	0.133	27
	FLZ36VB	32.79	33.63	34.49	63	5	210	0.5	0.133	27
	FLZ36VC	33.40	34.27	35.13	63	5	210	0.5	0.133	27
	FLZ36VD	34.01	34.89	35.77	63	5	210	0.5	0.133	27
FLZ39V	FLZ39VA	34.68	35.57	36.47	72	5	210	0.5	0.133	30
	FLZ39VB	35.36	36.26	37.19	72	5	210	0.5	0.133	30
	FLZ39VC	36.00	36.92	37.85	72	5	210	0.5	0.133	30
	FLZ39VD	36.63	37.58	38.52	72	5	210	0.5	0.133	30

**Note:**

3. Zener Voltage ( $V_Z$ ): The zener voltage is measured with the device junction in the thermal equilibrium at the lead temperature (TL) at  $30^\circ\text{C} \pm 1^\circ\text{C}$  and 3/8" lead length.

### Typical Performance Characteristics

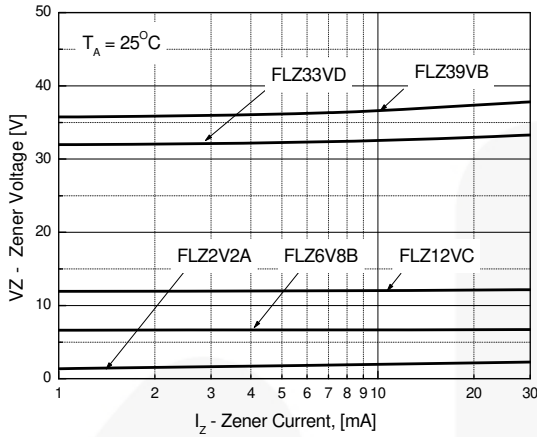


Figure 1. Zener current vs. Zener Voltage

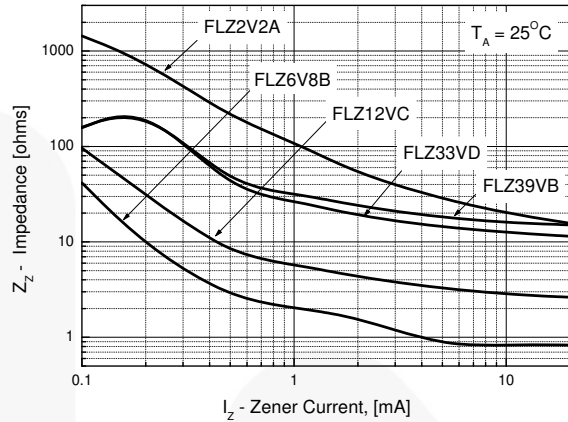


Figure 2. Zener current vs. Zener Impedance

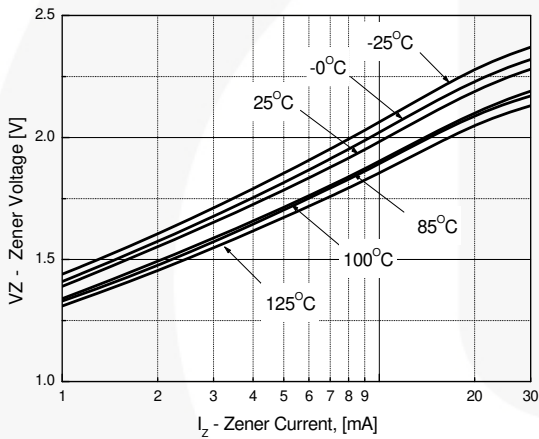


Figure 3. FLZ2V2A  
Zener current vs. Zener Voltage

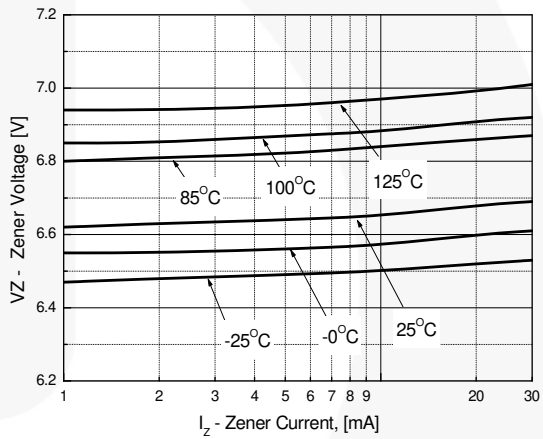


Figure 4. FLZ6V8B  
Zener current vs. Zener Voltage

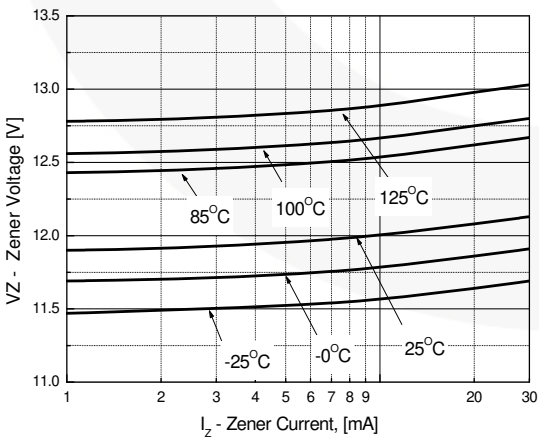


Figure 5. FLZ12VC  
Zener current vs. Zener Voltage

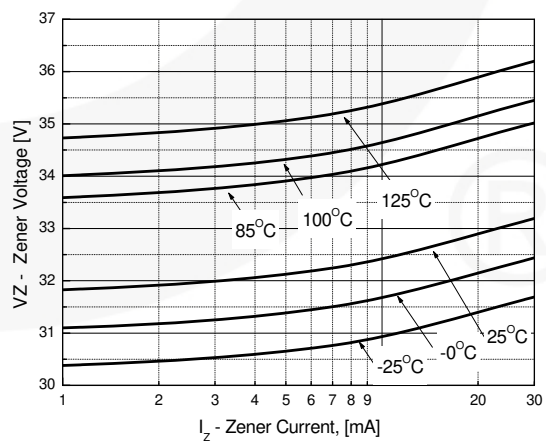


Figure 6. FLZ33VD  
Zener current vs. Zener Voltage

Typical Performance Characteristics (Continued)

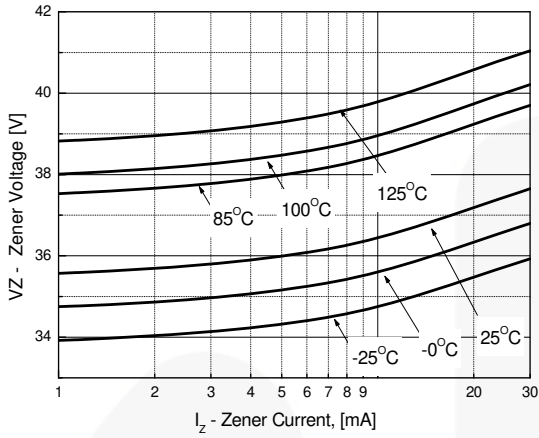
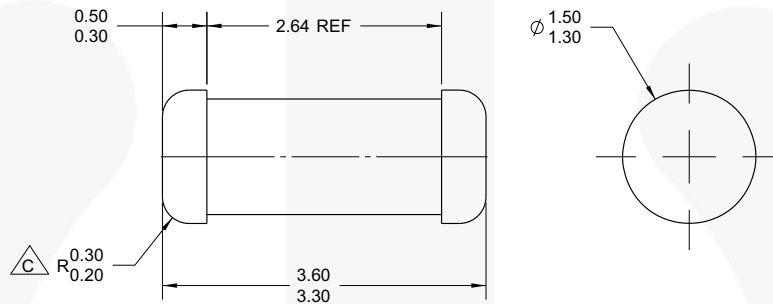


Figure 7. FLZ39VB  
Zener current vs. Zener Voltage



## Physical Dimensions

### SOD-80



NOTES: UNLESS OTHERWISE SPECIFIED

A) PACKAGE STANDARD REFERENCE:  
JEDEC DO-213, VARIATION AC.

B) ALL DIMENSIONS ARE IN MILLIMETERS.

$\triangle C$  CORNER RADIUS IS OPTIONAL.

D) DRAWING FILE NAME: SOD80A REV01

**Figure 8. 2-TERMINAL, SOD-80, JEDEC DO-213AC, MINI-MELF**

Package drawings are provided as a service to customers considering Fairchild components. Drawings may change in any manner without notice. Please note the revision and/or date on the drawing and contact a Fairchild Semiconductor representative to verify or obtain the most recent revision. Package specifications do not expand the terms of Fairchild's worldwide terms and conditions, specifically the warranty therein, which covers Fairchild products.

Always visit Fairchild Semiconductor's online packaging area for the most recent package drawings:

<http://www.fairchildsemi.com/packaging/>






For current tape and reel specifications, visit Fairchild Semiconductor's online packaging area:

[http://www.fairchildsemi.com/packaging/tr/SOD80A\\_tnr.pdf](http://www.fairchildsemi.com/packaging/tr/SOD80A_tnr.pdf)



**TRADEMARKS**

The following includes registered and unregistered trademarks and service marks, owned by Fairchild Semiconductor and/or its global subsidiaries, and is not intended to be an exhaustive list of all such trademarks.

- |   |  |   |   |
|---|--|---|---|
| 2Cool™  | FPS™   |  | Sync-Lock™  |
| AccuPower™  | F-PFS™   | PowerTrench®  |  |
| AX-CAP®*  | FRFET®   | PowerXS™  | TinyBoost™  |
| BitSiC™   | Global Power Resource <sup>SM</sup>            | Programmable Active Droop™  | TinyBuck™   |
| Build it Now™   | GreenBridge™                                   | QFET®   | TinyCalc™   |
| CorePLUS™   | Green FPS™                                     | QS™   | TinyLogic®  |
| CorePOWER™  | Green FPS™ e-Series™                           | Quiet Series™   | TINYOPTO™   |
| CROSSVOLT™  | Gmax™  | RapidConfigure™   | TinyPower™  |
| CTL™  | GTO™   |  | TinyPWM™  |
| Current Transfer Logic™   | IntelliMAX™                                    | Saving our world, 1mW/W/kW at a time™   | TinyWire™   |
| DEUXPEED®   | ISOPLANAR™                                     | SignalWise™   | TranSiC™  |
| Dual Cool™  | Making Small Speakers Sound Louder and Better™ | SmartMax™   | TriFault Detect™  |
| EcoSPARK®   | MegaBuck™                                      | SMART START™  | TRUECURRENT®*   |
| EfficientMax™   | MICROCOUPLER™                                  | Solutions for Your Success™   | μSerDes™  |
| ESBC™   | MicroFET™                                      | SPM®  |  |
|  | MicroPak™                                      | STEALTH™  | UHC®  |
| Fairchild®  | MicroPak2™                                     | SuperFET™   | Ultra FRFET™  |
| Fairchild Semiconductor®  | MillerDrive™                                   | SuperSOT™-3   | UniFET™   |
| FACT Quiet Series™  | MotionMax™                                     | SuperSOT™-6   | VXC™  |
| FACT®   | mWSaver™                                       | SuperSOT™-8   | VisualMax™  |
| FAST®   | OptoHi™  | SupreMOS®   | VoltagePlus™  |
| FastvCore™  | OPTOLOGIC®                                     | SyncFET™  | XS™   |
| FETBench™   | OPTOPLANAR®                                    |   |   |

\* Trademarks of System General Corporation, used under license by Fairchild Semiconductor.

**DISCLAIMER**

FAIRCHILD SEMICONDUCTOR RESERVES THE RIGHT TO MAKE CHANGES WITHOUT FURTHER NOTICE TO ANY PRODUCTS HEREIN TO IMPROVE RELIABILITY, FUNCTION, OR DESIGN. FAIRCHILD DOES NOT ASSUME ANY LIABILITY ARISING OUT OF THE APPLICATION OR USE OF ANY PRODUCT OR CIRCUIT DESCRIBED HEREIN; NEITHER DOES IT CONVEY ANY LICENSE UNDER ITS PATENT RIGHTS, NOR THE RIGHTS OF OTHERS. THESE SPECIFICATIONS DO NOT EXPAND THE TERMS OF FAIRCHILD'S WORLDWIDE TERMS AND CONDITIONS, SPECIFICALLY THE WARRANTY THEREIN, WHICH COVERS THESE PRODUCTS.

**LIFE SUPPORT POLICY**

FAIRCHILD'S PRODUCTS ARE NOT AUTHORIZED FOR USE AS CRITICAL COMPONENTS IN LIFE SUPPORT DEVICES OR SYSTEMS WITHOUT THE EXPRESS WRITTEN APPROVAL OF FAIRCHILD SEMICONDUCTOR CORPORATION.

As used herein:

1. Life support devices or systems are devices or systems which, (a) are intended for surgical implant into the body or (b) support or sustain life, and (c) whose failure to perform when properly used in accordance with instructions for use provided in the labeling, can be reasonably expected to result in a significant injury of the user.
2. A critical component in any component of a life support, device, or system whose failure to perform can be reasonably expected to cause the failure of the life support device or system, or to affect its safety or effectiveness.

**ANTI-COUNTERFEITING POLICY**

Fairchild Semiconductor Corporation's Anti-Counterfeiting Policy. Fairchild's Anti-Counterfeiting Policy is also stated on our external website, [www.fairchildsemi.com](http://www.fairchildsemi.com), under Sales Support.

Counterfeiting of semiconductor parts is a growing problem in the industry. All manufacturers of semiconductor products are experiencing counterfeiting of their parts. Customers who inadvertently purchase counterfeit parts experience many problems such as loss of brand reputation, substandard performance, failed applications, and increased cost of production and manufacturing delays. Fairchild is taking strong measures to protect ourselves and our customers from the proliferation of counterfeit parts. Fairchild strongly encourages customers to purchase Fairchild parts either directly from Fairchild or from Authorized Fairchild Distributors who are listed by country on our web page cited above. Products customers buy either from Fairchild directly or from Authorized Fairchild Distributors are genuine parts, have full traceability, meet Fairchild's quality standards for handling and storage and provide access to Fairchild's full range of up-to-date technical and product information. Fairchild and our Authorized Distributors will stand behind all warranties and will appropriately address any warranty issues that may arise. Fairchild will not provide any warranty coverage or other assistance for parts bought from Unauthorized Sources. Fairchild is committed to combat this global problem and encourage our customers to do their part in stopping this practice by buying direct or from authorized distributors.

**PRODUCT STATUS DEFINITIONS**

**Definition of Terms**

Datasheet Identification	Product Status	Definition
Advance Information	Formative / In Design	Datasheet contains the design specifications for product development. Specifications may change in any manner without notice.
Preliminary	First Production	Datasheet contains preliminary data; supplementary data will be published at a later date. Fairchild Semiconductor reserves the right to make changes at any time without notice to improve design.
No Identification Needed	Full Production	Datasheet contains final specifications. Fairchild Semiconductor reserves the right to make changes at any time without notice to improve the design.
Obsolete	Not In Production	Datasheet contains specifications on a product that is discontinued by Fairchild Semiconductor. The datasheet is for reference information only.