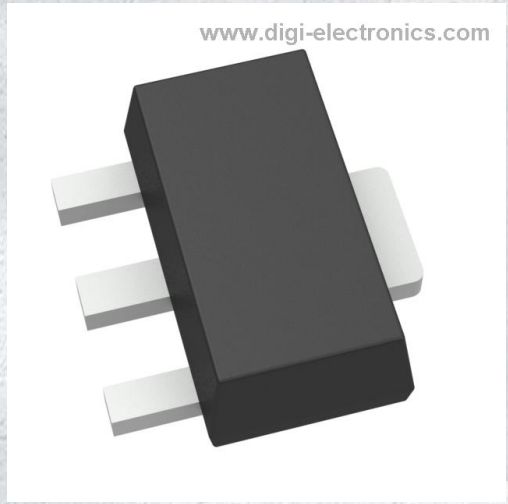
FCX558TA Datasheet



https://www.DiGi-Electronics.com

DiGi Electronics Part Number	FCX558TA-DG
Manufacturer	Diodes Incorporated
Manufacturer Product Number	FCX558TA
Description	TRANS PNP 400V 0.2A SOT89-3
Detailed Description	Bipolar (BJT) Transistor PNP 400 V 200 mA 50MHz 1 W Surface Mount SOT-89-3

Tel: +00 852-30501935

RFQ Email: Info@DiGi-Electronics.com

Purchase and inquiry

Manufacturer Product Number:	Manufacturer:
FCX558TA	Diodes Incorporated
Series:	Product Status:
-	Active
Transistor Type:	Current - Collector (Ic) (Max):
PNP	200 mA
Voltage - Collector Emitter Breakdown (Max):	Vce Saturation (Max) @ Ib, Ic:
400 V	500mV @ 6mA, 50mA
Current - Collector Cutoff (Max):	DC Current Gain (hFE) (Min) @ Ic, Vce:
100nA	100 @ 50mA, 10V
Power - Max:	Frequency - Transition:
1 W	50MHz
Operating Temperature:	Mounting Type:
-65°C ~ 150°C (TJ)	Surface Mount
Package / Case:	Supplier Device Package:
TO-243AA	SOT-89-3
Base Product Number:	
FCX558	

Environmental & Export classification

RoHS Status:	Moisture Sensitivity Level (MSL):
ROHS3 Compliant	1 (Unlimited)
REACH Status:	ECCN:
REACH Unaffected	EAR99
HTSUS:	
8541.29.0075	

Lead-free Green

FCX558

400V PNP HIGH VOLTAGE TRANSISTOR IN SOT89

Features

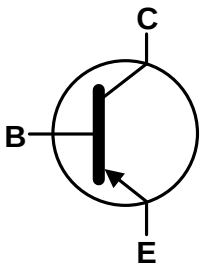
- BV_{CEO} > -400V
- I_C = -200mA High Continuous Current
- I_{CM} = -500mA Peak Pulse Current
- Excellent h_{FE} Characteristics up to -100mA
- Low Saturation Voltage $V_{CE(sat)}$ < -200mV @ -20mA
- Complementary NPN Type: FCX458
- **Totally Lead-Free & Fully RoHS Compliant (Notes 1 & 2)**
- **Halogen and Antimony Free. "Green" Device (Note 3)**
- **Qualified to AEC-Q101 Standards for High Reliability**

Mechanical Data

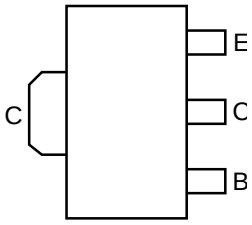
- Case: SOT89
- Case Material: Molded Plastic. "Green" Molding Compound. UL Flammability Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminals: Finish - Matte Tin Plated Leads, Solderable per MIL-STD-202, Method 208 e3
- Weight: 0.05 grams (Approximate)

SOT89

Top View



Device Symbol



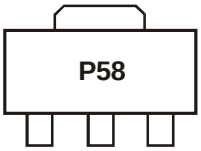
Top View
Pin Out

Ordering Information (Note 4)

Product	Compliance	Marking	Reel Size (inches)	Tape Width (mm)	Quantity per Reel
FCX558TA	AEC-Q101	P58	7	12	1,000

Notes:
1. No purposely added lead. Fully EU Directive 2002/95/EC (RoHS) & 2011/65/EU (RoHS 2) compliant.
2. See http://www.diodes.com/quality/lead_free.html for more information about Diodes Incorporated's definitions of Halogen- and Antimony-free, "Green" and Lead-free.
3. Halogen- and Antimony-free "Green" products are defined as those which contain <900ppm bromine, <900ppm chlorine (<1500ppm total Br + Cl) and <1000ppm antimony compounds.
4. For packaging details, go to our website at http"//www.diodes.com/products/packages.html.

Marking Information



P58 = Product Type Marking Code

Absolute Maximum Ratings (@T_A = +25°C, unless otherwise specified.)

Characteristic	Symbol	Limit	Unit
Collector-Base Voltage	V_{CBO}	-400	V
Collector-Emitter Voltage	V_{CEO}	-400	V
Emitter-Base Voltage	V_{EBO}	-7	V
Continuous Collector Current	I_C	-200	mA
Peak Pulse Current	I_{CM}	-500	mA

Thermal Characteristics (@T_A = +25°C, unless otherwise specified.)

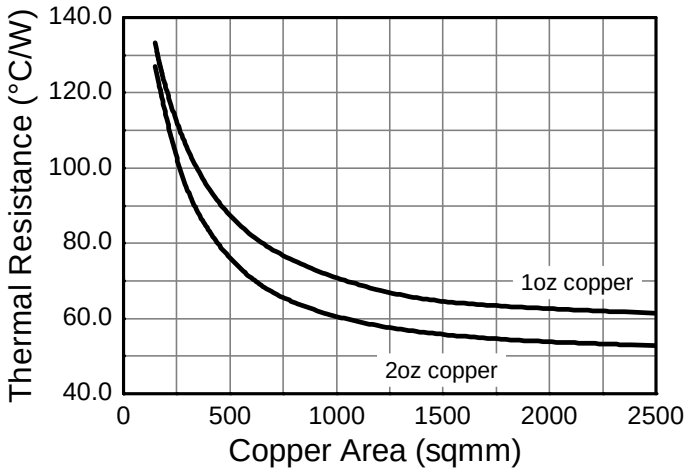
Characteristic		Symbol	Value	Unit
Power Dissipation	(Note 5)	P_D	0.7	W
	(Note 6)		1	
	(Note 7)		1.5	
	(Note 8)		2	
Thermal Resistance, Junction to Ambient Air	(Note 5)	$R_{\theta JA}$	178	°C/W
	(Note 6)		125	
	(Note 7)		83	
	(Note 8)		60	
Thermal Resistance, Junction to Lead	(Note 9)	$R_{\theta JL}$	22	
Operating and Storage Temperature Range		T_J, T_{STG}	-65 to +150	°C

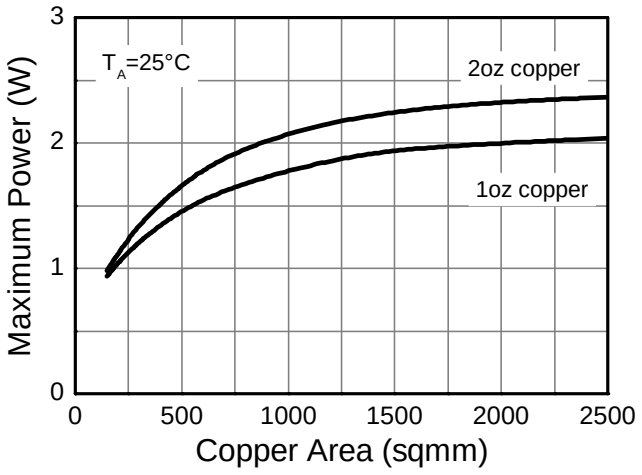
ESD Ratings (Note 10)

Characteristic	Symbol	Value	Unit	JEDEC Class
Electrostatic Discharge - Human Body Model	ESD HBM	4,000	V	3A
Electrostatic Discharge - Machine Model	ESD MM	400	V	C

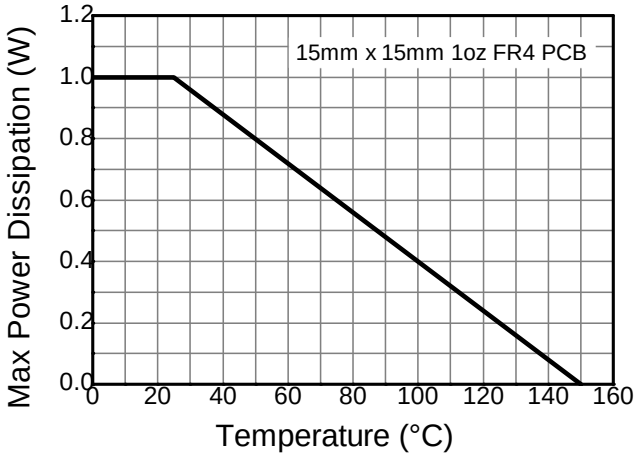
Notes:
5. For a device mounted with the exposed collector pad on minimum recommended pad layout (MRP) 1oz copper that is on a single-sided 1.6mm FR4 PCB; device is measured under still air conditions whilst operating in a steady-state.
6. Same as Note 5, except the device is mounted with the exposed collector pad on 15mm x 15mm 1oz copper.
7. Same as Note 5, except the device is mounted with the exposed collector pad on 25mm x 25mm 1oz copper.
8. Same as Note 5, except the device is mounted with the exposed collector pad on 50mm x 50mm 1oz copper.
9. Thermal resistance from junction to solder-point (on the exposed collector pad).
10. Refer to JEDEC specification JESD22-A114 and JESD22-A115.

Thermal Characteristics and Derating Information

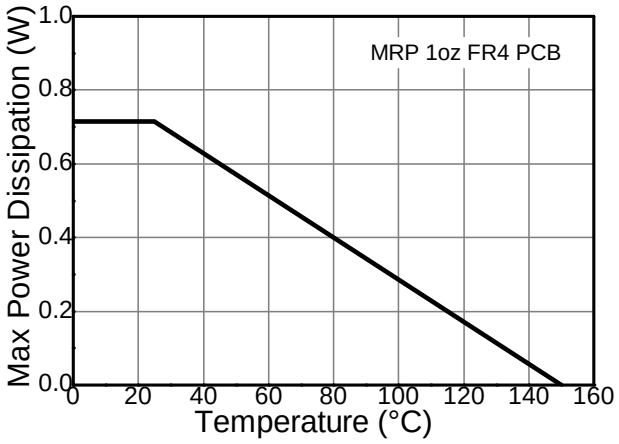




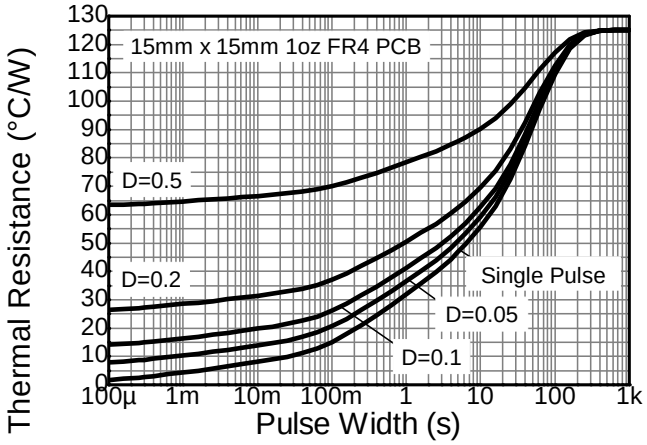
Thermal Characteristics and Derating Information (cont.)



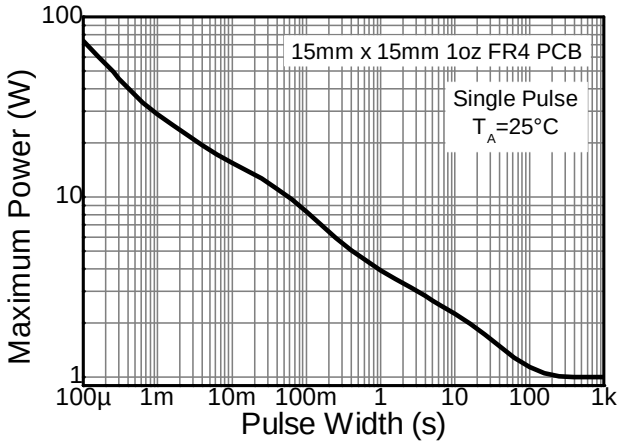
Derating Curve



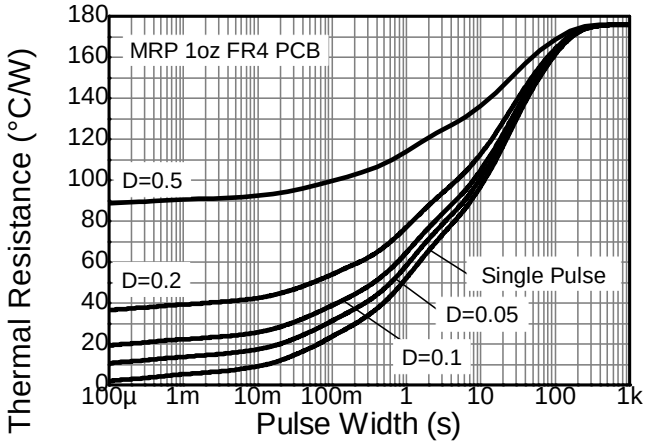
Derating Curve



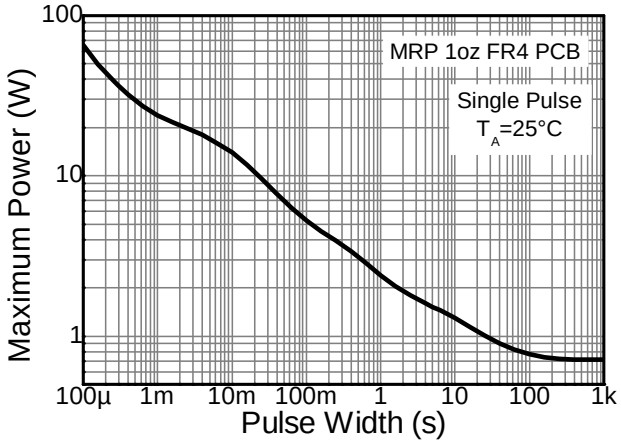
Transient Thermal Impedance



Pulse Power Dissipation



Transient Thermal Impedance



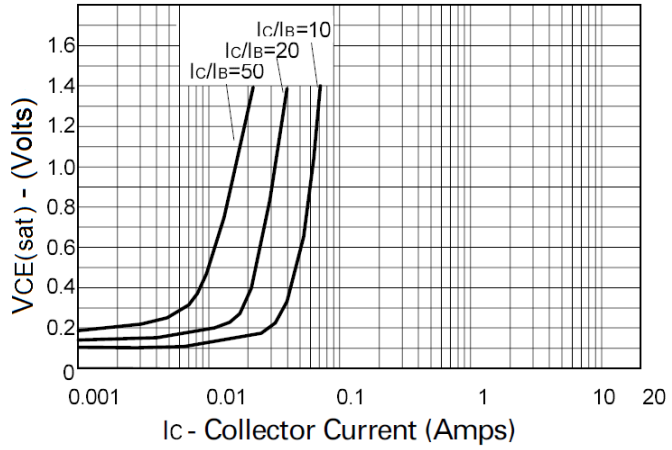
Pulse Power Dissipation

Electrical Characteristics (@T_A = +25°C, unless otherwise specified.)

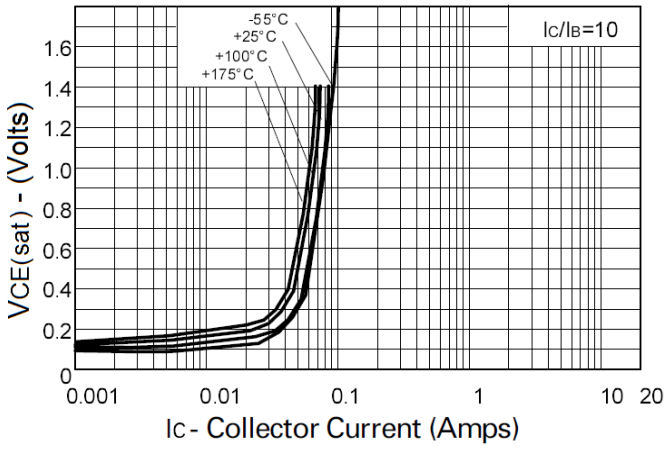
Characteristic	Symbol	Min	Typ.	Max	Unit	Test Condition
Collector-Base Breakdown Voltage	BV_{CBO}	-400	-540	-	V	I_C = -100µA
Collector-Emitter Breakdown Voltage (Note 11)	BV_{CEO}	-400	-510	-	V	I_C = -1mA
Collector-Emitter Breakdown Voltage	BV_{CES}	-400	-540		V	I_C = -100µA
Emitter-Base Breakdown Voltage	BV_{EBO}	-7	-8.2	-	V	I_E = -100µA
Collector Cutoff Current	I_{CBO}	-	<-1	-100	nA	V_{CB} = -320V
Emitter Cutoff Current	I_{CES}	-	<-1	-100	nA	V_{CE} = -320V
Emitter Cutoff Current	I_{EBO}	-	<-1	-20	nA	V_{EB} = -6V
DC Current Transfer Static Ratio (Note 11)	h_{FE}	100 100 15	- - -	- 300 -	-	I_C = -1mA, V_{CE} = -10V I_C = -50mA, V_{CE} = -10V I_C = -100mA, V_{CE} = -10V
Collector-Emitter Saturation Voltage (Note 11)	$V_{CE(sat)}$	- -	- -	-0.2 -0.5	V	I_C = -20mA, I_B = -2mA I_C = -50mA, I_B = -6mA
Base-Emitter Saturation Voltage (Note 11)	$V_{BE(sat)}$	-	-	-0.9	V	I_C = -50mA, I_B = -5mA
Base-Emitter Turn-on Voltage (Note 11)	$V_{BE(on)}$	-	-	-0.9	V	I_C = -50mA, V_{CE} = -10V
Transitional Frequency	f_T	50	-	-	MHz	I_E = -10mA, V_{CE} = -20V f = 20MHz
Output Capacitance	C_{obo}	-	-	5	pF	V_{CB} = -20V, f = 1MHz,
Switching Times	t_{on}	-	95	-	nS	I_C = -50mA, V_C = -100V I_{B1} = -5mA, I_{B2} = -10mA
	t_{off}		1,600			

Note: 11. Measured under pulsed conditions. Pulse width ≤ 300µs. Duty cycle ≤ 2%.

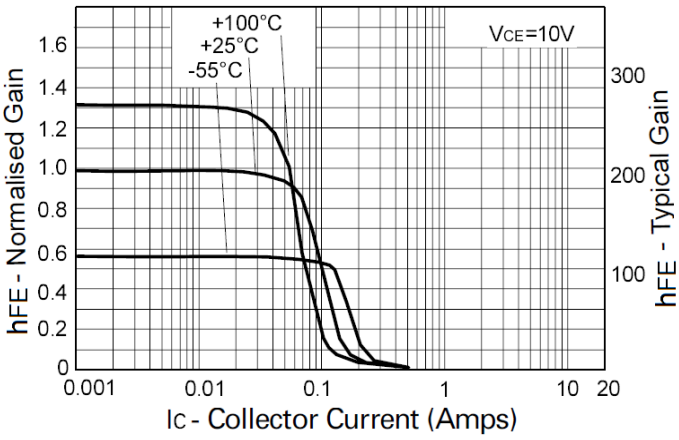
Typical Electrical Characteristics (@T_A = +25°C, unless otherwise specified.)



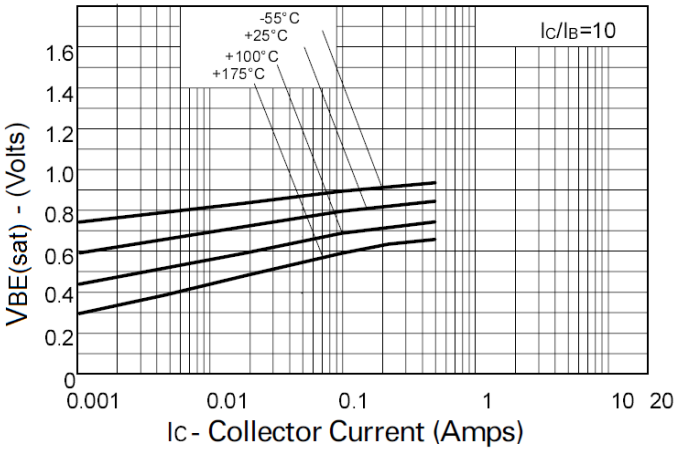
VCE(sat) v IC



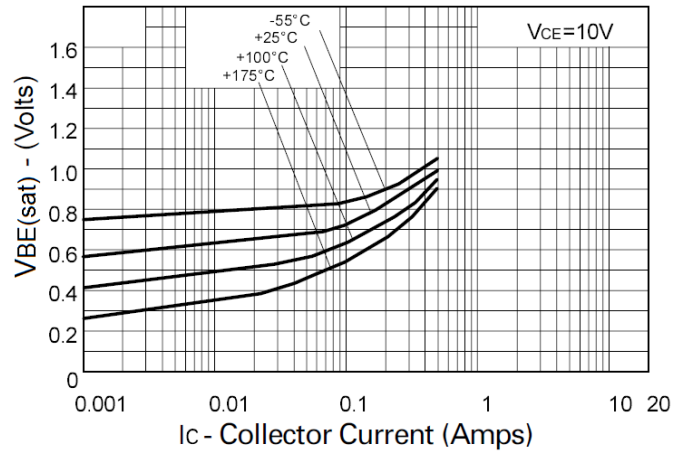
VCE(sat) v IC



hFE v IC



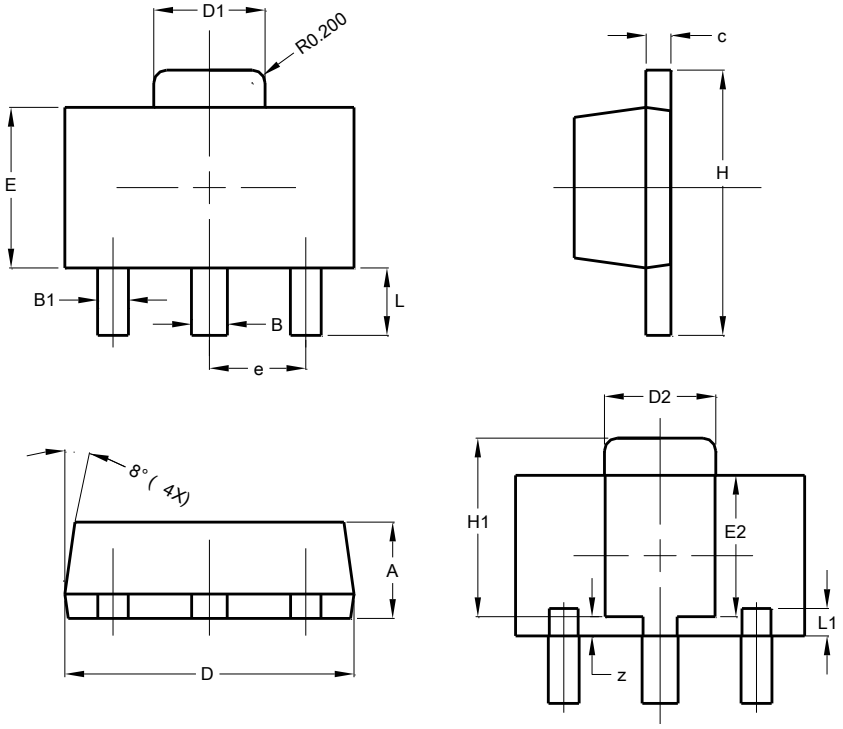
VBE(sat) v IC



VBE(on) v IC

Package Outline Dimensions

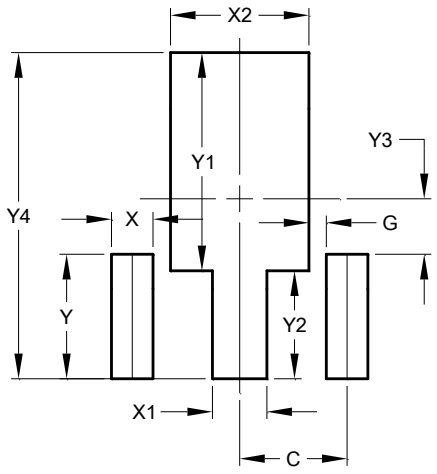
Please see http://www.diodes.com/package-outlines.html for the latest version.



SOT89			
Dim	**Min**	**Max**	**Typ**
A	1.40	1.60	1.50
B	0.50	0.62	0.56
B1	0.42	0.54	0.48
c	0.35	0.43	0.38
D	4.40	4.60	4.50
D1	1.62	1.83	1.733
D2	1.61	1.81	1.71
E	2.40	2.60	2.50
E2	2.05	2.35	2.20
e	-	-	1.50
H	3.95	4.25	4.10
H1	2.63	2.93	2.78
L	0.90	1.20	1.05
L1	0.327	0.527	0.427
z	0.20	0.40	0.30
All Dimensions in mm			

Suggested Pad Layout

Please see http://www.diodes.com/package-outlines.html for the latest version.



Dimensions	Value (in mm)
C	1.500
G	0.244
X	0.580
X1	0.760
X2	1.933
Y	1.730
Y1	3.030
Y2	1.500
Y3	0.770
Y4	4.530

Note: For high voltage applications, the appropriate industry sector guidelines should be considered with regards to creepage and clearance distances between device terminals and PCB tracking.

IMPORTANT NOTICE

DIODES INCORPORATED MAKES NO WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, WITH REGARDS TO THIS DOCUMENT, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE (AND THEIR EQUIVALENTS UNDER THE LAWS OF ANY JURISDICTION).

Diodes Incorporated and its subsidiaries reserve the right to make modifications, enhancements, improvements, corrections or other changes without further notice to this document and any product described herein. Diodes Incorporated does not assume any liability arising out of the application or use of this document or any product described herein; neither does Diodes Incorporated convey any license under its patent or trademark rights, nor the rights of others. Any Customer or user of this document or products described herein in such applications shall assume all risks of such use and will agree to hold Diodes Incorporated and all the companies whose products are represented on Diodes Incorporated website, harmless against all damages.

Diodes Incorporated does not warrant or accept any liability whatsoever in respect of any products purchased through unauthorized sales channel. Should Customers purchase or use Diodes Incorporated products for any unintended or unauthorized application, Customers shall indemnify and hold Diodes Incorporated and its representatives harmless against all claims, damages, expenses, and attorney fees arising out of, directly or indirectly, any claim of personal injury or death associated with such unintended or unauthorized application.

Products described herein may be covered by one or more United States, international or foreign patents pending. Product names and markings noted herein may also be covered by one or more United States, international or foreign trademarks.

This document is written in English but may be translated into multiple languages for reference. Only the English version of this document is the final and determinative format released by Diodes Incorporated.

LIFE SUPPORT

Diodes Incorporated products are specifically not authorized for use as critical components in life support devices or systems without the express written approval of the Chief Executive Officer of Diodes Incorporated. As used herein:

A. Life support devices or systems are devices or systems which:

1. are intended to implant into the body, or

2. support or sustain life and whose failure to perform when properly used in accordance with instructions for use provided in the labeling can be reasonably expected to result in significant injury to the user.

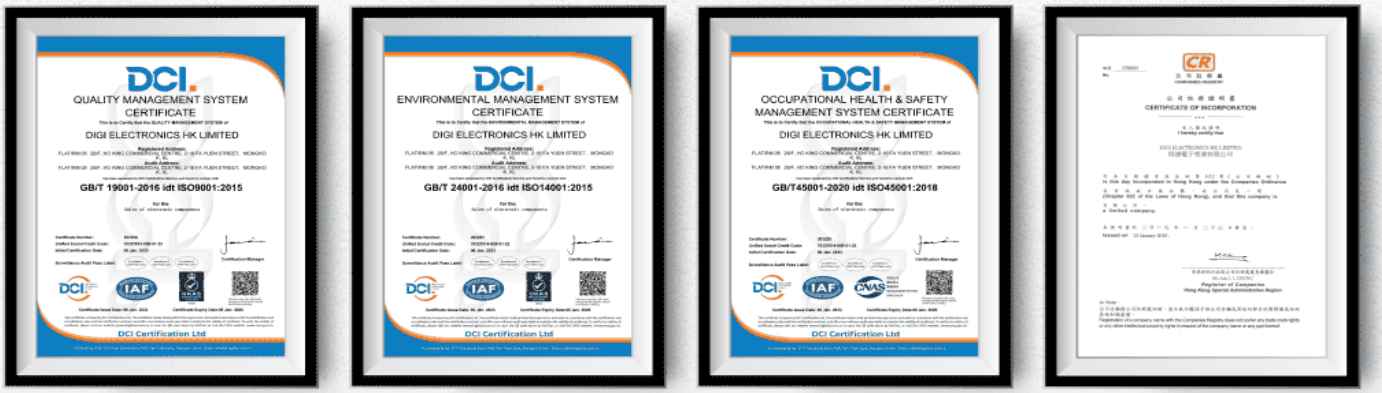
B. A critical component is any component in a life support device or system whose failure to perform can be reasonably expected to cause the failure of the life support device or to affect its safety or effectiveness.

Customers represent that they have all necessary expertise in the safety and regulatory ramifications of their life support devices or systems, and acknowledge and agree that they are solely responsible for all legal, regulatory and safety-related requirements concerning their products and any use of Diodes Incorporated products in such safety-critical, life support devices or systems, notwithstanding any devices- or systems-related information or support that may be provided by Diodes Incorporated. Further, Customers must fully indemnify Diodes Incorporated and its representatives against any damages arising out of the use of Diodes Incorporated products in such safety-critical, life support devices or systems.

www.diodes.com

OUR CERTIFICATE

DiGi provide top-quality products and perfect service for customer worldwide through standardization, technological innovation and continuous improvement. DiGi through third-party certification, we striciy control the quality of products and services. Welcome your RFQ to Email: Info@DiGi-Electronics.com



Tel: +00 852-30501935

RFQ Email: Info@DiGi-Electronics.com

DiGi is a global authorized distributor of electronic components.