



Chipsmall Limited consists of a professional team with an average of over 10 year of expertise in the distribution of electronic components. Based in Hongkong, we have already established firm and mutual-benefit business relationships with customers from,Europe,America and south Asia,supplying obsolete and hard-to-find components to meet their specific needs.

With the principle of “Quality Parts,Customers Priority,Honest Operation,and Considerate Service”,our business mainly focus on the distribution of electronic components. Line cards we deal with include Microchip,ALPS,ROHM,Xilinx,Pulse,ON,Everlight and Freescale. Main products comprise IC,Modules,Potentiometer,IC Socket,Relay,Connector.Our parts cover such applications as commercial,industrial, and automotives areas.

We are looking forward to setting up business relationship with you and hope to provide you with the best service and solution. Let us make a better world for our industry!



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Features

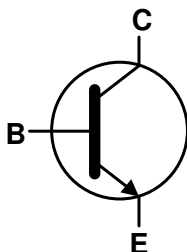
- $BV_{CEO} > 400V$
- $I_C = 225mA$ Continuous Collector Current
- $I_{CM} = 500mA$ Peak Pulse Current
- Excellent h_{FE} Characteristics up to 100mA
- Low saturation voltage $V_{CE(sat)} < 200mV @ 20mA$
- Complementary PNP Type: FCX558
- **Totally Lead-Free & Fully RoHS Compliant (Notes 1 & 2)**
- **Halogen and Antimony Free. "Green" Device (Note 3)**
- **Qualified to AEC-Q101 Standards for High Reliability**

Mechanical Data

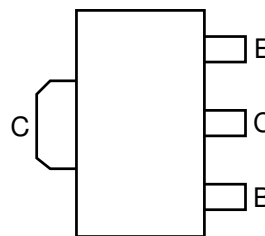
- Case: SOT89
- Case Material: Molded Plastic. "Green" Molding Compound. UL Flammability Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminals: Finish - Matte Tin Plated Leads, Solderable per MIL-STD-202, Method 208 Ⓢ
- Weight: 0.055 grams (Approximate)



Top View



Equivalent Circuit



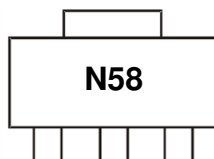
Top View
Pin-Out

Ordering Information (Note 4)

Product	Compliance	Marking	Reel size (inches)	Tape width (mm)	Quantity per reel
FCX458TA	AEC-Q101	N58	7	12mm	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



N58 = Product Type Marking Code

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

Characteristic	Symbol	Value	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	225	mA
Peak Pulse Current	I _{CM}	500	mA
Base Current	I _B	200	mA

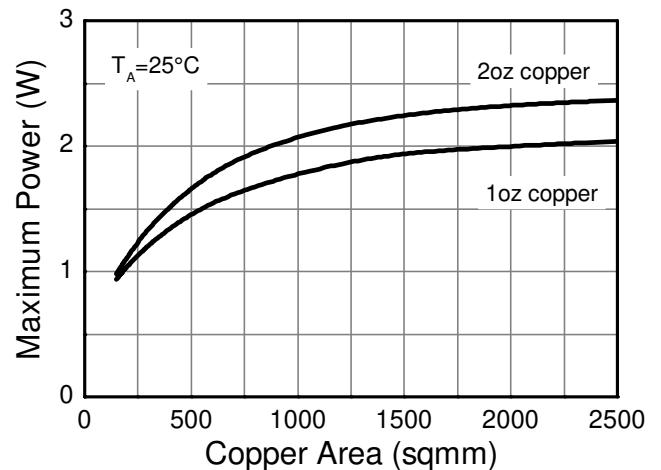
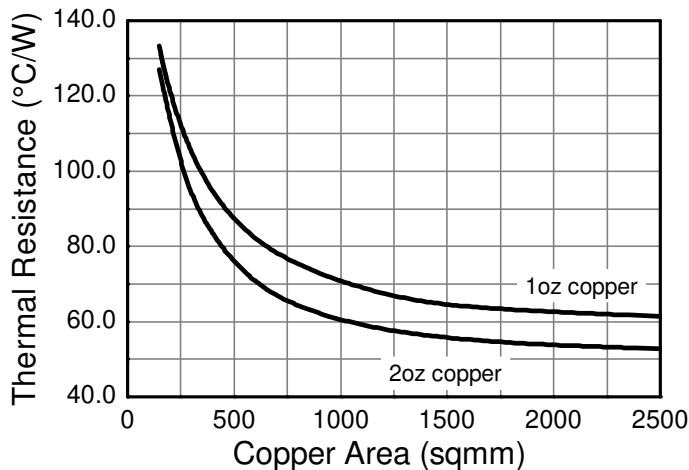
Thermal Characteristics (@T_A = +25°C, unless otherwise specified.)

Characteristic	Symbol	Value	Unit
Power Dissipation	P _D	0.7	W
		1	
		1.5	
		2	
Thermal Resistance, Junction to Ambient Air	R _{θJA}	178	°C/W
		125	
		83	
		60	
Thermal Resistance, Junction to Lead	R _{θJL}	22	°C
Operating and Storage Temperature Range	T _J , T _{STG}	-65 to +150	°C

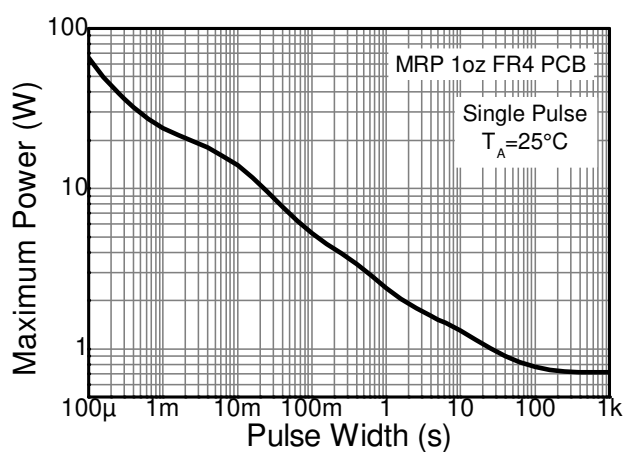
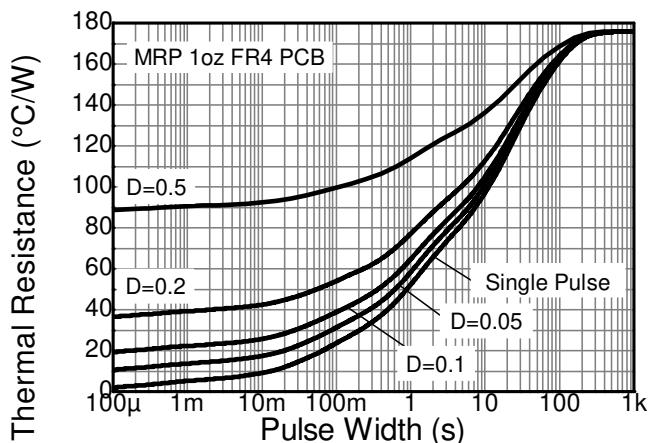
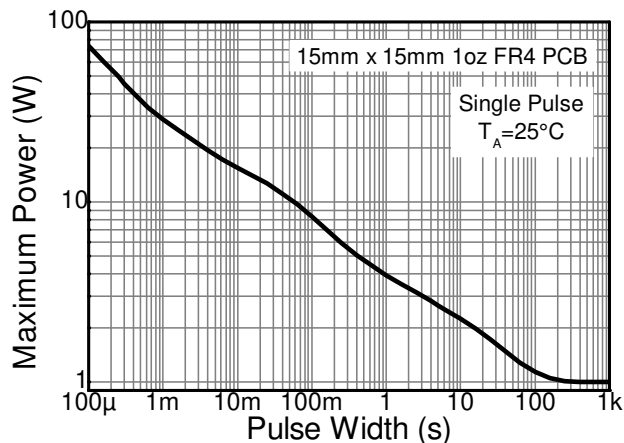
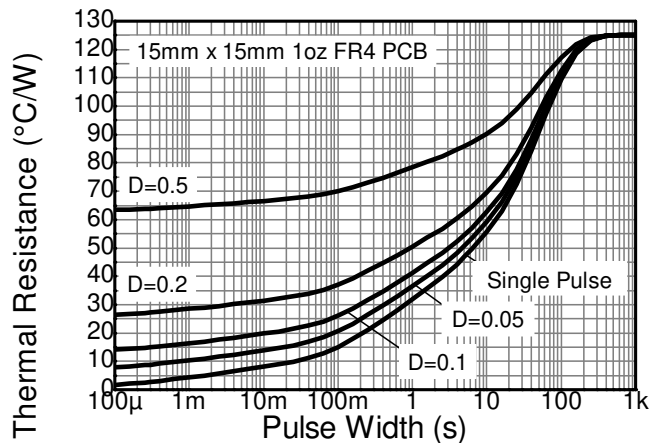
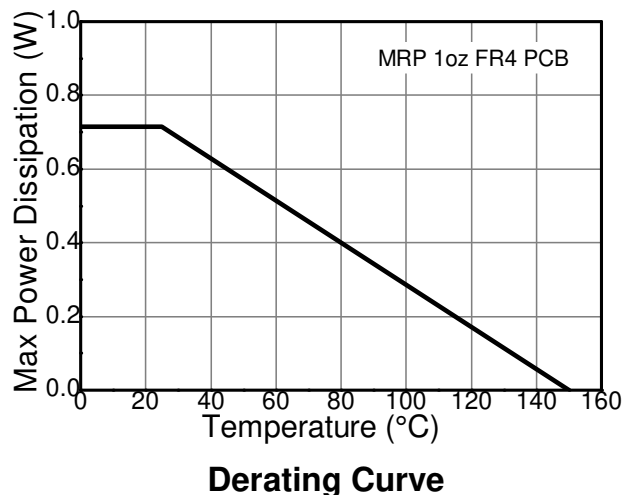
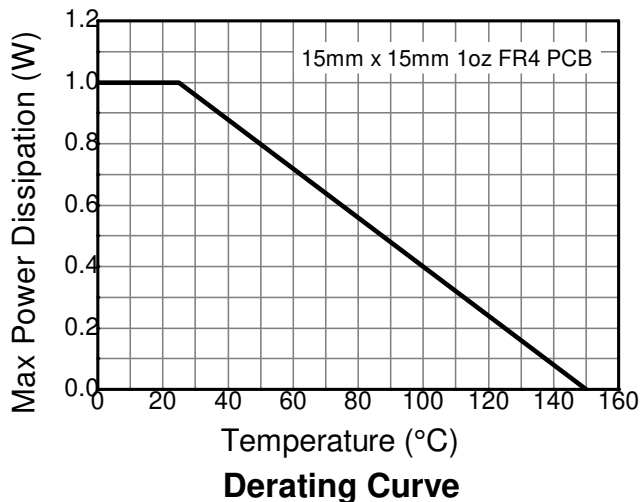
ESD Ratings (Note 10)

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:
- 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.
 - Same as Note 5, except the device is mounted with the exposed collector pad on 15mm x 15mm 1oz copper.
 - Same as Note 5, except the device is mounted with the exposed collector pad on 25mm x 25mm 1oz copper.
 - Same as Note 5, except the device is mounted with the exposed collector pad on 50mm x 50mm 1oz copper.
 - Thermal resistance from junction to solder-point (on the exposed collector pad).
 - Refer to JEDEC specification JESD22-A114 and JESD22-A115.

Thermal Characteristics and Derating Information


Thermal Characteristics and Derating Information (cont.)

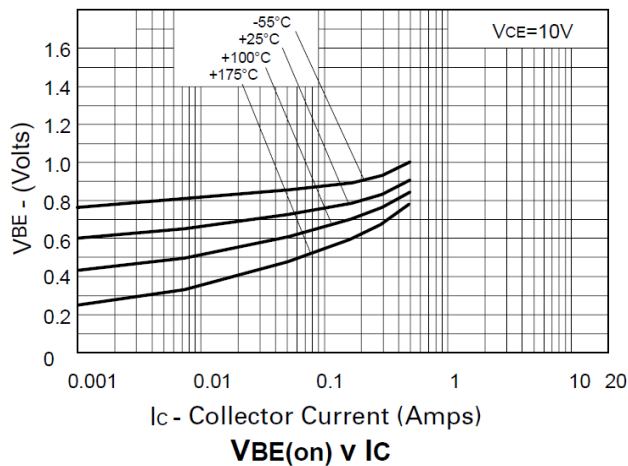
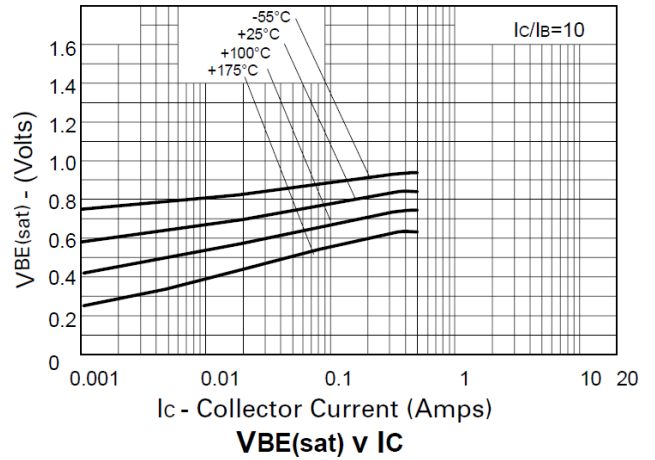
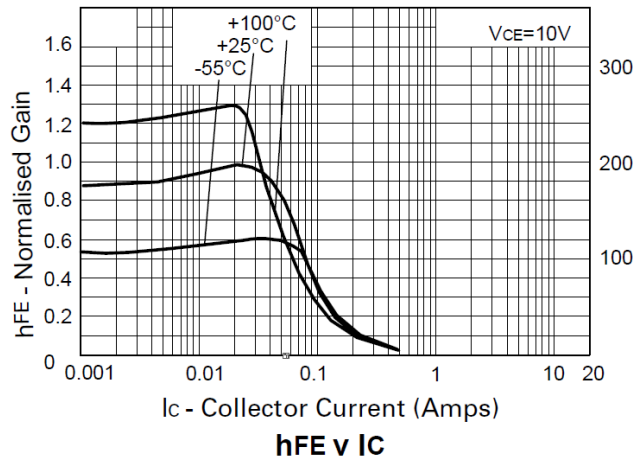
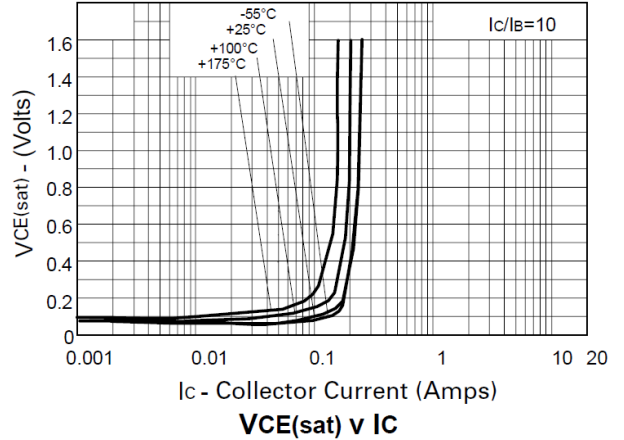
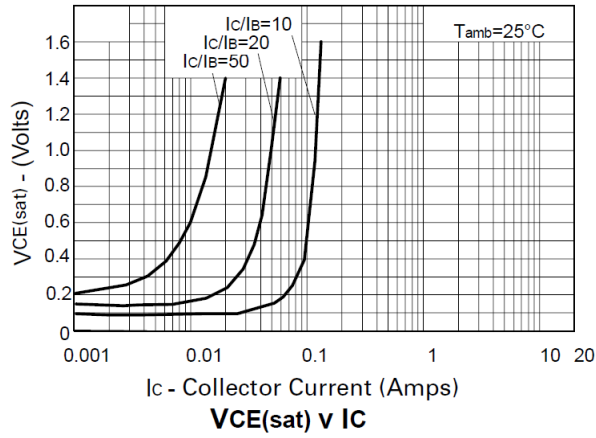


Electrical Characteristics (@T_A = +25°C, unless otherwise specified.)

Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
Collector-Base Breakdown Voltage	BV _{CB0}	400	550	—	V	I _C = 100μA
Collector-Emitter Breakdown Voltage	BV _{CES}	400	550	—	V	I _C = 100μA
Collector-Emitter Breakdown Voltage (Note 11)	BV _{CEO}	400	450	—	V	I _C = 1mA
Emitter-Base Breakdown Voltage	BV _{EBO}	7	8.1	—	V	I _E = 100μA
Collector-Base Cutoff Current	I _{CB0}	—	<1	100	nA	V _{CB} = 320V
Collector Cutoff Current	I _{CES}	—	<1	100	nA	V _{CES} = 320V
Emitter Cutoff Current	I _{EBO}	—	<1	20	nA	V _{EB} = 6V
Collector-Emitter Saturation Voltage (Note 11)	V _{CE(sat)}	— —	— —	200 500	mV	I _C = 20mA, I _B = 2mA I _C = 50mA, I _B = 6mA
Base-Emitter Saturation Voltage (Note 11)	V _{BE(sat)}	—	—	900	mV	I _C = 50mA, I _B = 5mA
Base-Emitter Turn-On Voltage (Note 11)	V _{BE(on)}	—	—	900	mV	I _C = 50mA, V _{CE} = 10V
DC Current Gain (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
Transitional Frequency	f _T	50	—	—	MHz	I _C = 10mA, V _{CE} = 20V, f = 20MHz
Output Capacitance	C _{obo}	—	—	5	pF	V _{CB} = 20V. f = 1MHz
Turn-On Time	t _{on}	—	135	—	ns	I _C = 50mA, V _{CE} = 100V,
Turn-Off Time	t _{off}	—	2260	—	ns	I _{B1} = 5mA, I _{B2} = -10mA

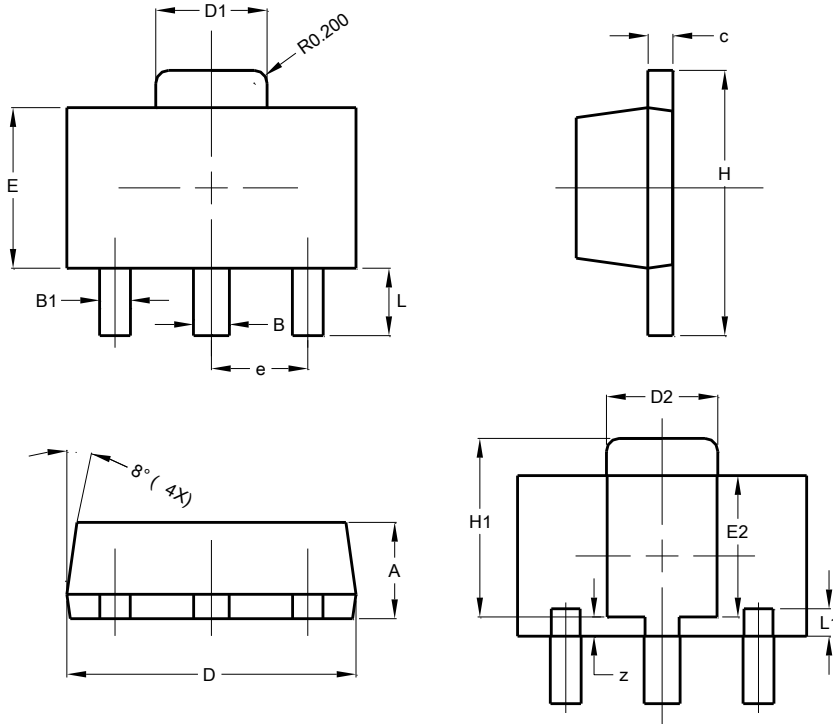
Note: 11. Measured under pulsed conditions. Pulse width ≤ 300μs. Duty cycle ≤ 2%

Typical Electrical Characteristics (@ $T_A = +25^\circ\text{C}$, unless otherwise specified.)



Package Outline Dimensions

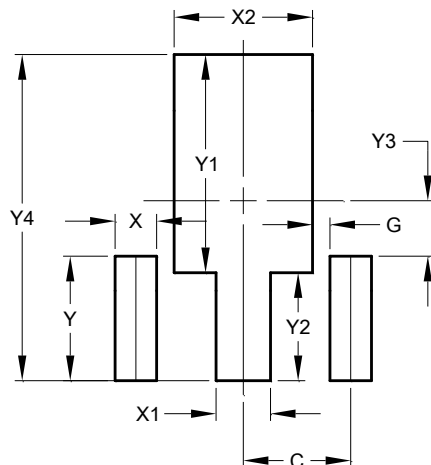
Please see <http://www.diodes.com/package-outlines.html> for the latest version.



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.

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