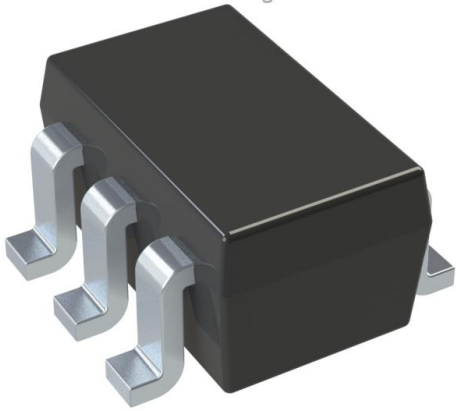


ADC144EUQ-13 Datasheet

www.digi-electronics.com



<https://www.DiGi-Electronics.com>

DiGi Electronics Part Number	ADC144EUQ-13-DG
Manufacturer	Diodes Incorporated
Manufacturer Product Number	ADC144EUQ-13
Description	IC TRANSISTOR SOT363
Detailed Description	Pre-Biased Bipolar Transistor (BJT) 2 NPN - Pre-Biased (Dual) 100mA 250MHz 270mW Surface Mount SOT-363



Tel: +00 852-30501935

RFQ Email: Info@DiGi-Electronics.com

DiGi is a global authorized distributor of electronic components.

Purchase and inquiry

Manufacturer Product Number:

ADC144EUQ-13

Series:

-

Transistor Type:

2 NPN - Pre-Biased (Dual)

Voltage - Collector Emitter Breakdown (Max):

-

Resistor - Emitter Base (R2):

47kOhms

Vce Saturation (Max) @ Ib, Ic:

300mV @ 500µA, 10mA

Frequency - Transition:

250MHz

Grade:

Automotive

Mounting Type:

Surface Mount

Supplier Device Package:

SOT-363

Manufacturer:

Diodes Incorporated

Product Status:

Active

Current - Collector (Ic) (Max):

100mA

Resistor - Base (R1):

47kOhms

DC Current Gain (hFE) (Min) @ Ic, Vce:

68 @ 5mA, 5V

Current - Collector Cutoff (Max):

-

Power - Max:

270mW

Qualification:

AEC-Q101

Package / Case:

6-TSSOP, SC-88, SOT-363

Base Product Number:

ADC144

Environmental & Export classification

RoHS Status:

ROHS3 Compliant

REACH Status:

REACH Unaffected

HTSUS:

8541.21.0075

Moisture Sensitivity Level (MSL):

1 (Unlimited)

ECCN:

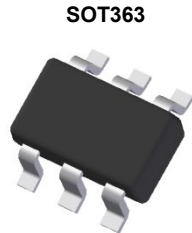
EAR99

Features

- Epitaxial Planar Die Construction
- Built-In Biasing Resistors
- **Totally Lead-Free & Fully RoHS compliant (Notes 1 & 2)**
- **Halogen and Antimony Free. "Green" Device (Note 3)**
- **The ADC144EUQ is suitable for automotive applications requiring specific change control; this part is AEC-Q101 qualified, PPAP capable, and manufactured in IATF 16949 certified facilities.**

<https://www.diodes.com/blueprint/product-definitions/>

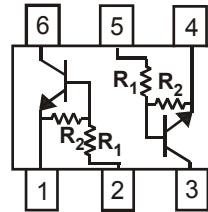
R1 (NOM)	R2 (NOM)
47kΩ	47kΩ



Top View

Mechanical Data

- Case: SOT363
- Case Material: Molded Plastic, "Green" Molding Compound
- UL Flammability Classification 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: 0.006 grams (Approximate)



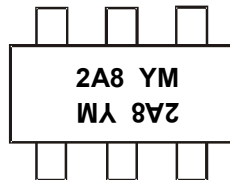
Device Schematic

Ordering Information (Note 4)

Product	Compliance	Marking	Reel size (inches)	Tape width (mm)	Quantity per reel
ADC144EUQ-7	Automotive	2A8	7	8	3,000
ADC144EUQ-13	Automotive	2A8	13	8	10,000

- Notes:
1. No purposely added lead. Fully EU Directive 2002/95/EC (RoHS), 2011/65/EU (RoHS 2) & 2015/863/EU (RoHS 3) compliant.
 2. See <https://www.diodes.com/quality/lead-free/> 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 <https://www.diodes.com/design/support/packaging/diodes-packaging/>.

Marking Information



2A8 = Product Type Marking Code
 YM = Date Code Marking
 Y or Ȳ = Year (ex: I = 2021)
 M = Month (ex: 9 = September)

Date Code Key

Year	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
Code	I	J	K	L	M	N	O	P	R	S	T	U

Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Code	1	2	3	4	5	6	7	8	9	O	N	D



ADC144EUQ

Absolute Maximum Ratings (@ $T_A = +25^\circ\text{C}$, unless otherwise specified.)

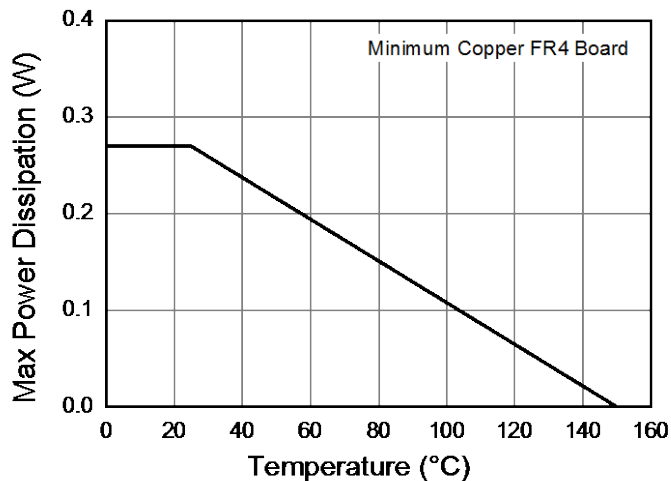
Characteristic	Symbol	Value	Unit
Supply Voltage	V_{CC}	50	V
Input Voltage	V_{IN}	-10 to +40	V
Output Current	$I_{C(MAX)}$	100	mA

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

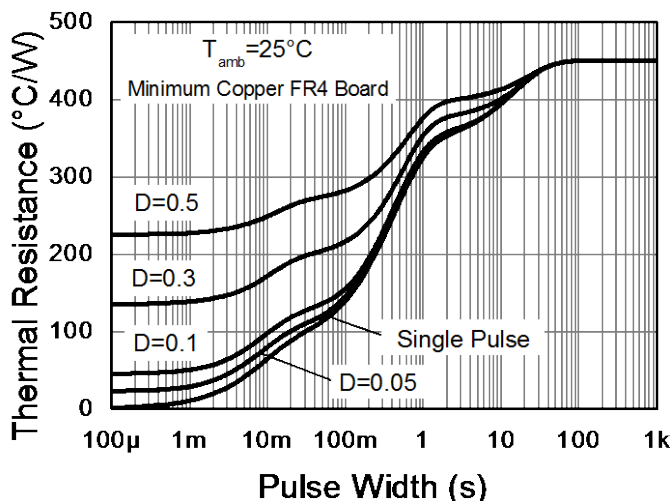
Characteristic	Symbol	Value	Unit
Power Dissipation (Notes 5 & 6)	P_D	270	mW
Thermal Resistance, Junction to Ambient Air (Note 5)	$R_{\theta JA}$	450	$^\circ\text{C/W}$
Operating and Storage Temperature Range	T_J, T_{STG}	-55 to +150	$^\circ\text{C}$

Notes: 5. Mounted on FR4 PC Board with minimum recommended pad layout.
6. 150mW per element must not be exceeded.

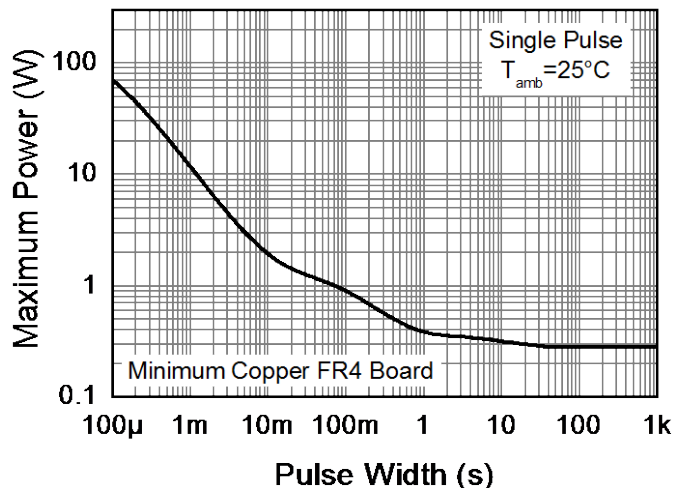
Thermal Characteristics and Derating Information



Derating Curve



Transient Thermal Impedance



Pulse Power Dissipation

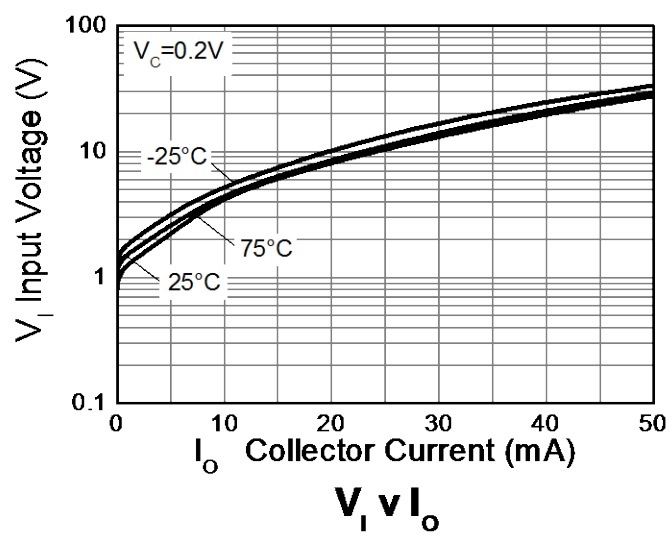
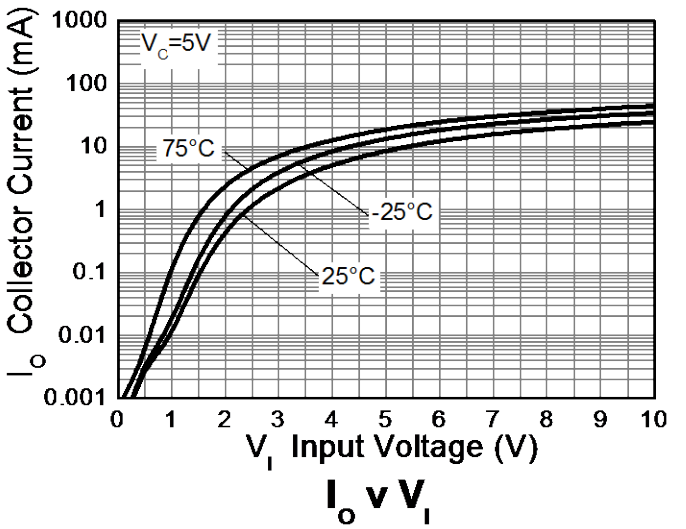
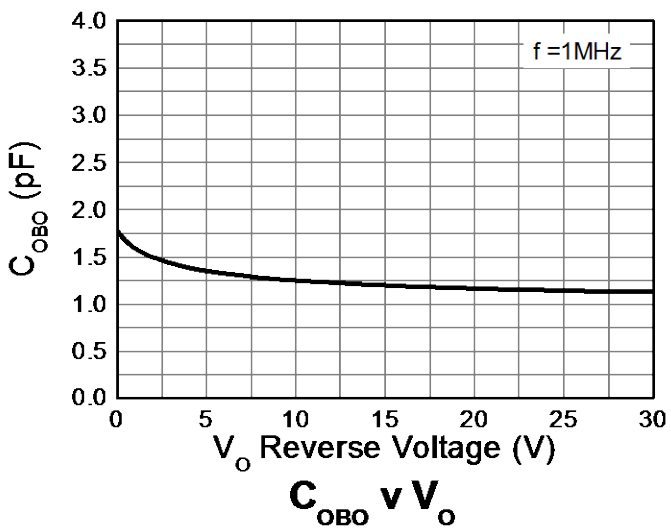
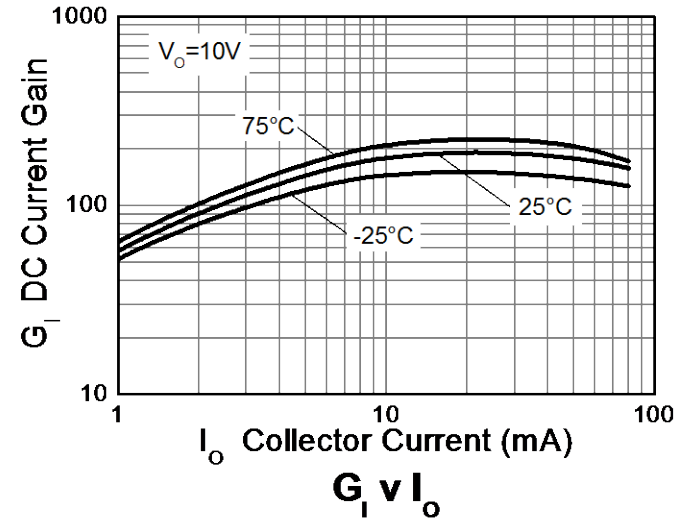
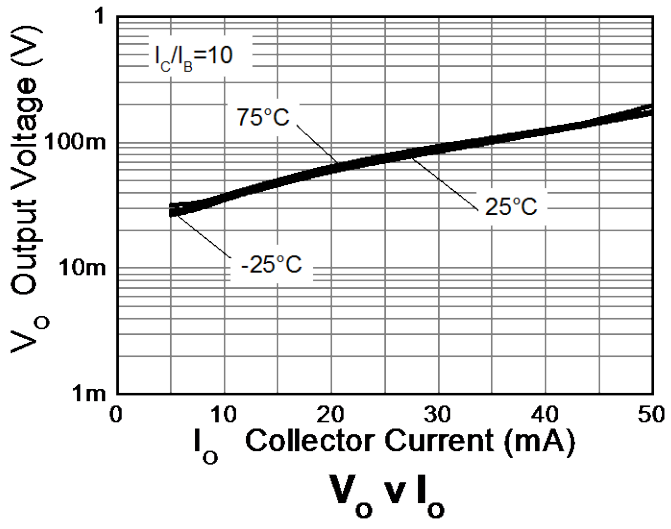

Electrical Characteristics (@ $T_A = +25^\circ\text{C}$, unless otherwise specified.)

Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
Input Voltage	$V_{I(off)}$ (Note 7)	0.5	1.1	—	V	$V_{CC} = 5V, I_O = 100\mu\text{A}$
	$V_{I(on)}$ (Note 8)	—	1.9	3.0		$V_O = 0.3V, I_O = 2\text{mA}$
Output Voltage	$V_{O(on)}$	—	0.1	0.3	V	$I_O/I_I = 10\text{mA} / 0.5\text{mA}$
Input Current	I_I	—	—	0.18	mA	$V_I = 5V$
Output Current	$I_{O(off)}$	—	—	0.5	μA	$V_{CC} = 50V, V_I = 0V$
DC Current Gain	G_I	68	—	—	—	$V_O = 5V, I_O = 5\text{mA}$
Input Resistor (R_1) Tolerance	ΔR_1	-30	—	+30	%	—
Resistance Ratio Tolerance	$\Delta(R_2/R_1)$	-20	—	+20	%	—
Gain-Bandwidth Product (Note 9)	f_T	—	250	—	MHz	$V_{CE} = 10V, I_E = 5\text{mA}, f = 100\text{MHz}$

Notes: 7. Guarantees that the device will be switched OFF if the Input Voltage is less than 0.5V.
 8. Guarantees that the device will be switched ON if the Input Voltage is more than 3V.
 9. Transistor - For Reference Only.



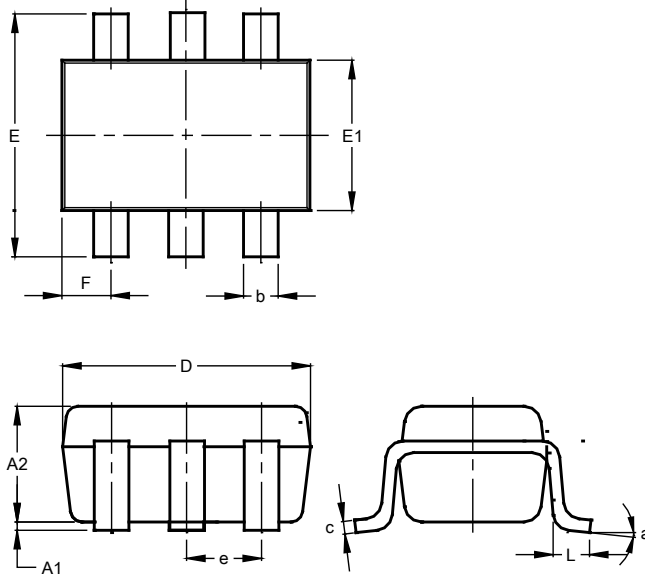
Typical Electrical Characteristics (@ $T_A = +25^\circ\text{C}$, unless otherwise specified.)



Package Outline Dimensions

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

SOT363

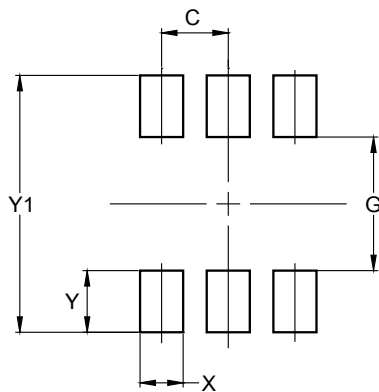


SOT363			
Dim	Min	Max	Typ
A1	0.00	0.10	0.05
A2	0.90	1.00	1.00
b	0.10	0.30	0.25
c	0.10	0.22	0.11
D	1.80	2.20	2.15
E	2.00	2.20	2.10
E1	1.15	1.35	1.30
e	0.650 BSC		
F	0.40	0.45	0.425
L	0.25	0.40	0.30
a	0°	8°	--
All Dimensions in mm			

Suggested Pad Layout

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

SOT363



Dimensions	Value (in mm)
C	0.650
G	1.300
X	0.420
Y	0.600
Y1	2.500

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