



**THE DATASHEET OF  
ADC114YUQ-7**

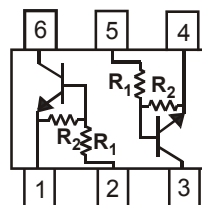
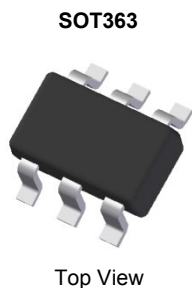


## Features

- 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 ADC114YUQ 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/quality/product-definitions/>

R <sub>1</sub> (NOM)	R <sub>2</sub> (NOM)
10kΩ	47kΩ

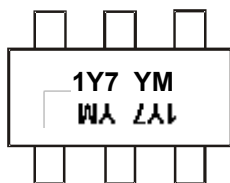


## Ordering Information (Note 4)

Product	Compliance	Marking	Reel Size (inches)	Tape Width (mm)	Quantity per Reel
ADC114YUQ-7	Automotive	1Y7	7	8	3,000
ADC114YUQ-13	Automotive	1Y7	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



1Y7 = Product Type Marking Code  
 YM = Date Code Marking  
 Y or Y = 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

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

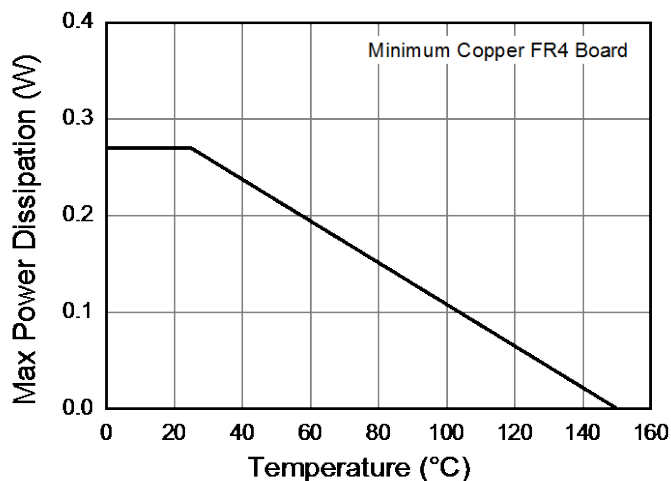
Characteristic	Symbol	Value	Unit
Supply Voltage	$V_{CC}$	50	V
Input Voltage	$V_{IN}$	-6 to +40	V
Output Current	$I_{C(MAX)}$	100	mA

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

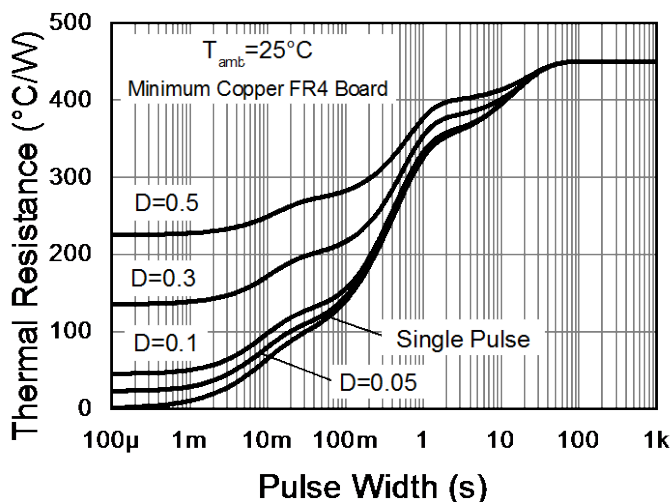
Characteristic	Symbol	Value	Unit
Power Dissipation (Notes 5 & 6)	$P_D$	270	mW
Thermal Resistance, Junction to Ambient Air (Note 5)	$R_{\theta JA}$	450	$^\circ\text{C/W}$
Operating and Storage Temperature Range	$T_J, T_{STG}$	-55 to +150	$^\circ\text{C}$

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

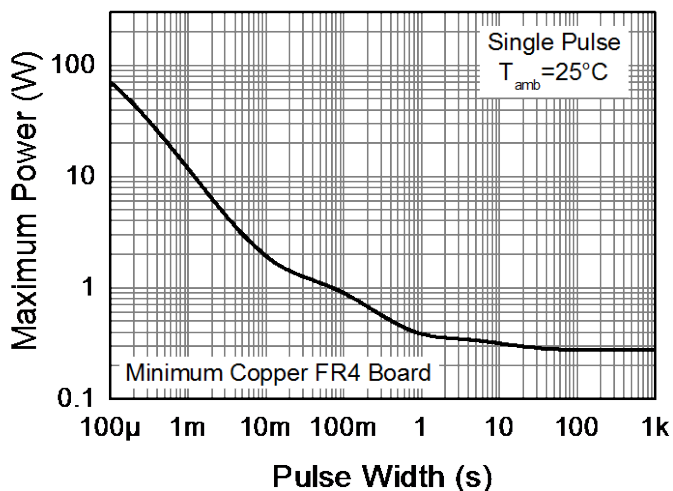
**Thermal Characteristics and Derating Information**



**Derating Curve**



**Transient Thermal Impedance**



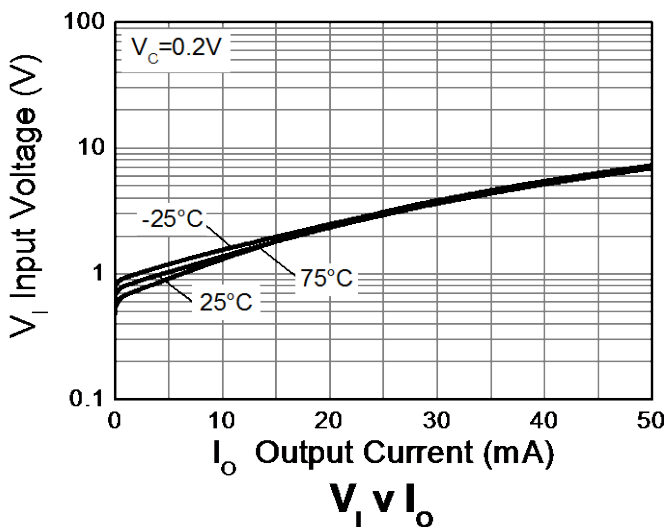
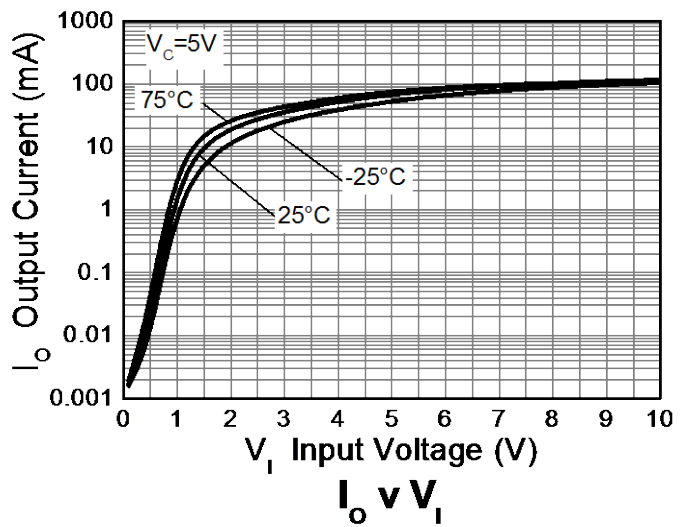
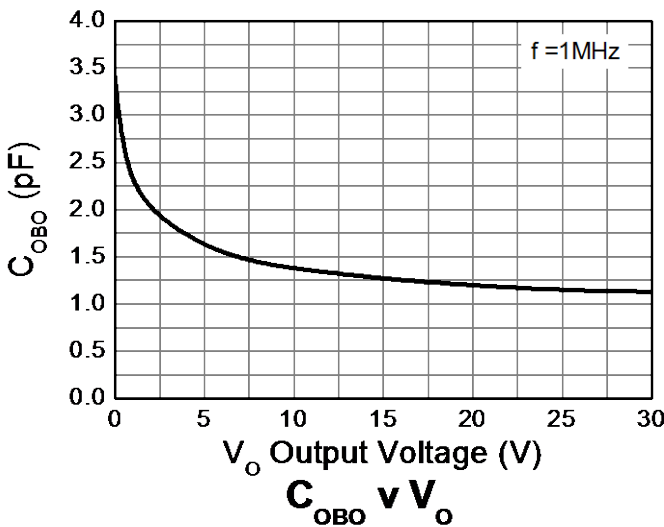
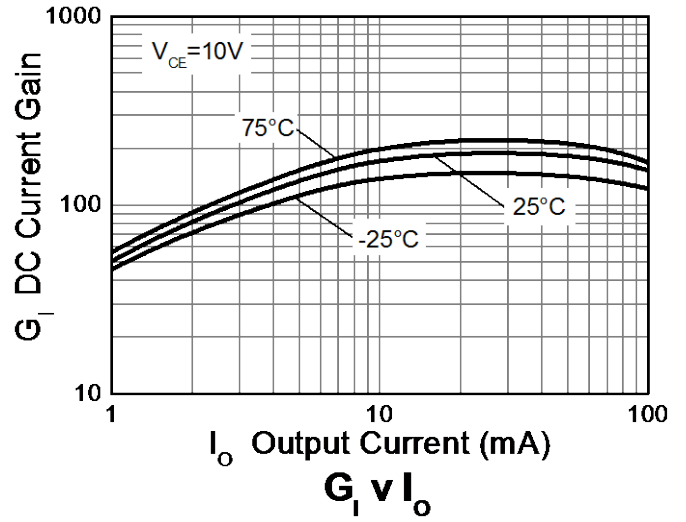
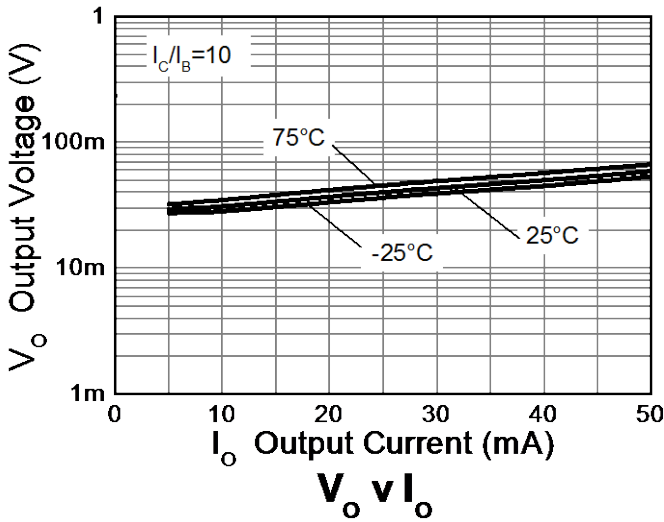
**Pulse Power Dissipation**

**Electrical Characteristics** (@ T<sub>A</sub> = +25°C, unless otherwise specified.)

Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
Input Voltage	V <sub>I(off)</sub> (Note 7)	0.3	—	—	V	V <sub>CC</sub> = 5V, I <sub>O</sub> = 100μA
	V <sub>I(on)</sub> (Note 8)	—	—	1.4		V <sub>O</sub> = 0.3V, I <sub>O</sub> = 1mA
Output Voltage	V <sub>O(on)</sub>	—	0.1	0.3	V	I <sub>O</sub> /I <sub>I</sub> = 5mA / 0.25mA
Input Current	I <sub>I</sub>	—	—	0.88	mA	V <sub>I</sub> = 5V
Output Current	I <sub>O(off)</sub>	—	—	0.5	μA	V <sub>CC</sub> = 50V, V <sub>I</sub> = 0V
DC Current Gain	G <sub>I</sub>	80	—	—	—	V <sub>O</sub> = 5V, I <sub>O</sub> = 5mA
Input Resistor (R <sub>1</sub> ) Tolerance	ΔR <sub>1</sub>	-30	—	+30	%	—
Resistance Ratio Tolerance	Δ(R <sub>2</sub> /R <sub>1</sub> )	-20	—	+20	%	—
Gain-Bandwidth Product (Note 9)	f <sub>T</sub>	—	250	—	MHz	V <sub>CE</sub> = 10V, I <sub>E</sub> = 5mA, f = 100MHz

Notes: 7. Guarantees that the device will be switched OFF if the Input Voltage is less than 0.3V.  
8. Guarantees that the device will be switched ON if the Input Voltage is more than 1.4V.  
9. Transistor - For Reference Only.

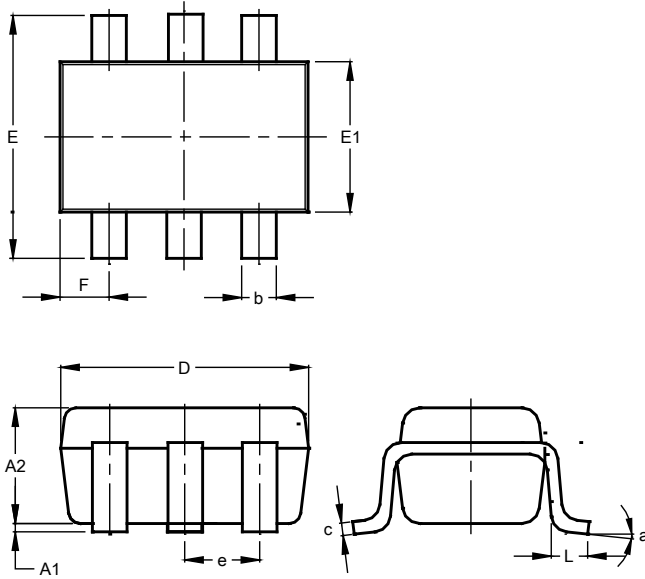
**Typical Electrical Characteristics** (@  $T_A = +25^\circ\text{C}$ , unless otherwise specified.)



**Package Outline Dimensions**

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

**SOT363**

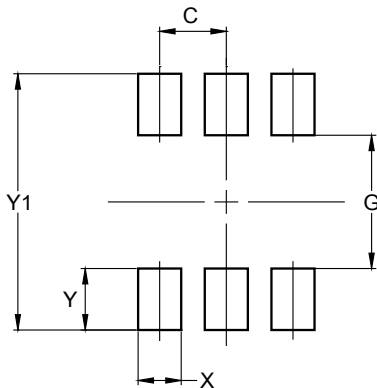


SOT363			
Dim	Min	Max	Typ
A1	0.00	0.10	0.05
A2	0.90	1.00	1.00
b	0.10	0.30	0.25
c	0.10	0.22	0.11
D	1.80	2.20	2.15
E	2.00	2.20	2.10
E1	1.15	1.35	1.30
e	0.650 BSC		
F	0.40	0.45	0.425
L	0.25	0.40	0.30
a	0°	8°	--
All Dimensions in mm			

**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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