

PNP PRE-BIASED SMALL SIGNAL SURFACE MOUNT TRANSISTOR

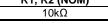
Features

- **Epitaxial Planar Die Construction**
- Built-In Biasing Resistors, R1 = R2
- 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
- PPAP Capable (Note 4)

R1, R2 (NOM)
10kΩ

Mechanical Data

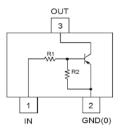
- Case: SOT23
- Case Material: Molded Plastic, "Green" Molding Compound. UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminals: Finish Matte Tin Plated Leads, Solderable per MIL-STD-202, Method 208 @3
- Weight: 0.008 grams (Approximate)



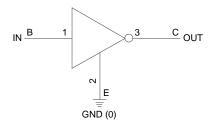








Device Schematic



Equivalent Inverter Circuit

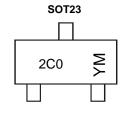
Ordering Information (Note 5)

Part Number	Compliance	Marking	Reel Size (inches)	Tape Width (mm)	Quantity Per Reel
ADTA114ECAQ-7	Automotive	2C0	7	8	3,000
ADTA114ECAQ-13	Automotive	2C0	13	8	10,000

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 + CI) and <1000ppm antimony compounds.
- 4. Automotive products are AEC-Q101 qualified and are PPAP capable. Refer to https://www.diodes.com/quality/product-compliance-definitions/.
- 5. For packaging details, go to our website at https://www.diodes.com/design/support/packaging/diodes-packaging/

Marking Information



2C0 = Product Type Marking Code YM = Date Code Marking Y = Year (ex: E = 2017)M = Month (ex: 9 = September)

Date Code Key

Year	2017	2018	2019	2020	202	1 20	22 2	2023	2024	2025	2026	2027
Code	E	F	G	Н	1	,	J	K	L	М	N	0
Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Code	4	2	2	1	5	6	7	Q	0		NI	ח



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

Characteristic	Symbol	Value	Unit
Supply Voltage <pin: (2)="" (3)="" to=""></pin:>	Vcc	-50	V
Input Voltage <pin: (1)="" (2)="" to=""></pin:>	V _{IN}	+10 to -40	V
Output Current	lo	-50	mA
Output Current	I _C (Max)	-100	mA

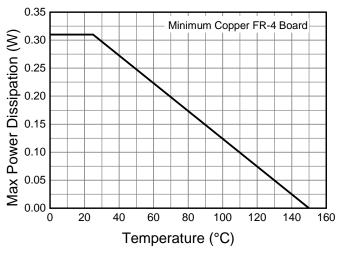
Thermal Characteristics (@T_A = +25°C, unless otherwise specified.)

Characteristic	Symbol	Value	Unit
Power Dissipation (Note 6)	P_{D}	310	mW
Thermal Resistance, Junction to Ambient Air (Note 6)	$R_{ hetaJA}$	403	°C/W
Operating and Storage Temperature Range	T _J , T _{STG}	-55 to +150	°C

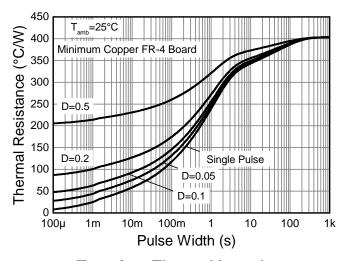
Note: 6. Mounted on FR-4 PC Board with minimum recommended pad layout.



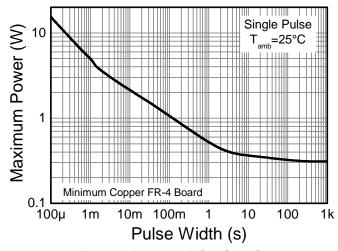
Thermal Characteristics and Derating Information



Derating Curve



Transient Thermal Impedance



Pulse Power Dissipation



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

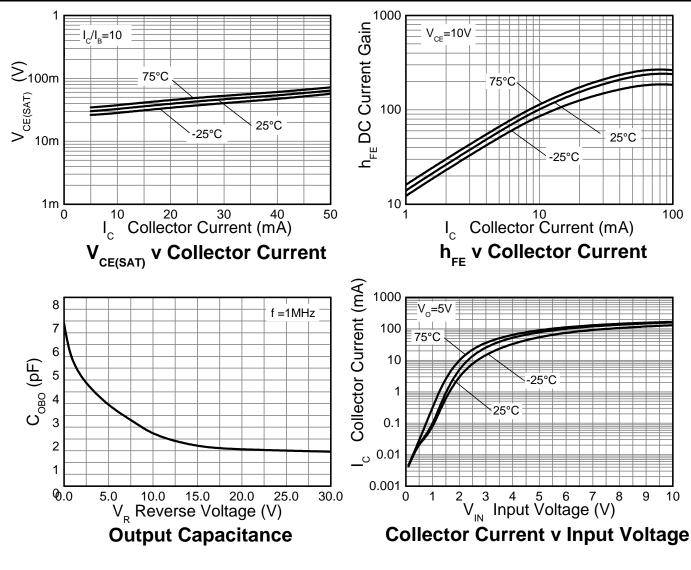
Characteristic	Symbol	Min	Тур	Max	Unit	Test Condition
Input Voltage	V _{I(OFF)} (Note 7)	-0.5	-1.1	_	V	$V_{CC} = -5V, I_{O} = -100\mu A$
Imput voltage	V _{I(ON)} (Note 8)		-1.9	-3	V	$V_O = -0.3V$, $I_O = -10mA$
Output Voltage	V _{O(ON)}		-0.1	-0.3	V	$I_{O}/I_{I} = -10\text{mA}/-0.5\text{mA}$
Input Current	II	_	_	-0.88	mA	$V_I = -5V$
Output Current	I _{O(OFF)}	_	_	-0.5	μA	$V_{CC} = -50V, V_I = 0V$
DC Current Gain	Gı	30	_	_	_	$V_0 = -5V, I_0 = -5mA$
Input Resistor Tolerance	ΔR_1	-30		+30	%	
Resistance Ratio Tolerance	$\Delta R_2/R_1$	-20	_	+20	%	
Gain-Bandwidth Product (Note 9)	f⊤	_	250	_	MHz	$V_{CE} = -10V$, $I_{E} = -5mA$, $f = 100MHz$

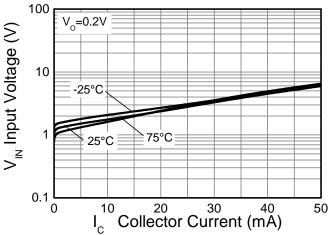
Notes:

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





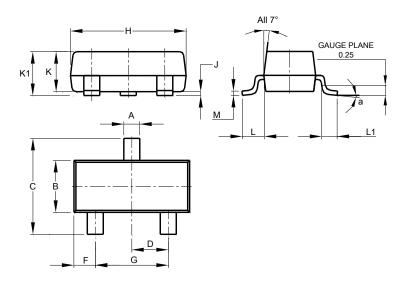
Input Voltage v Collector Current



Package Outline Dimensions

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

SOT23

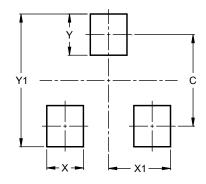


SOT23						
Dim	Min	Max	Тур			
Α	0.37	0.51	0.40			
В	1.20	1.40	1.30			
С	2.30	2.50	2.40			
D	0.89	1.03	0.915			
F	0.45	0.60	0.535			
G	1.78	2.05	1.83			
Н	2.80	3.00	2.90			
J	0.013	0.10	0.05			
K	0.890	1.00	0.975			
K1	0.903	1.10	1.025			
L	0.45	0.61	0.55			
L1	0.25	0.55	0.40			
M	0.085	0.150	0.110			
а	0°	8°				
All	All Dimensions in mm					

Suggested Pad Layout

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

SOT23



Dimensions	Value (in mm)
С	2.0
Х	0.8
X1	1.35
Y	0.9
Y1	29



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