

### PNP PRE-BIASED SMALL DUAL SIGNAL SURFACE MOUNT TRANSISTOR

### **Features**

- Epitaxial Planar Die Construction
- · Built-In Biasing Resistors
- Surface Mount Package Suited for Automated Assembly
- 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(NOM)	R2(NOM)
2.2kΩ	47kΩ

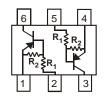
#### **SOT363**



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 @3
- Weight: 0.006 grams (Approximate)



**Device Schematic** 

### **Ordering Information** (Note 5)

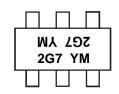
Product	Compliance	Marking	Reel Size (inches)	Tape Width (mm)	Quantity per Reel
ADA123JUQ-7	Automotive	2G7	7	8	3,000
ADA123JUQ-13	Automotive	2G7	13	8	10,000

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. Automotive products are AEC-Q101 qualified and are PPAP capable. Refer to https://www.diodes.com/quality/.
- 5. For packaging details, go to our website at https://www.diodes.com/design/support/packaging/diodes-packaging/.

### **Marking Information**

#### **SOT363**



2G7 = Product Type Marking Code YM = Date Code Marking Y = Year (ex: F = 2018) M = Month (ex: 9 = September)

#### Date Code Key

Year	2018	2019	2020	2021	202	2 20	23	2024	2025	2026	2027	2028
Code	F	G	Н	I	J		K	L	М	N	0	Р
Month	Jan	Feb	Mar	Apr	Mav	Jun	Jul	Auc	l Sep	Oct	Nov	Dec
Code	1	2	3	4	5	6	7	8	9	0	N	D



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

Characteristic	Symbol	Value	Unit
Supply Voltage <pin: (3)="" (4)="" to=""></pin:>	Vcc	-50	V
Input Voltage <pin: (4)="" (5)="" to=""></pin:>	$V_{IN}$	-12 to 5	V
Output Current	lo	-100	mA
Output Current	I <sub>C</sub> (Max)	-100	mA

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

Characteristic	Symbol	Value	Unit
Power Dissipation (Notes 6 & 7)	P <sub>D</sub>	270	mW
Thermal Resistance, Junction to Ambient Air (Note 6)	$R_{ hetaJA}$	450	°C/W
Operating and Storage Temperature Range	T <sub>J</sub> , T <sub>STG</sub>	-55 to +150	°C

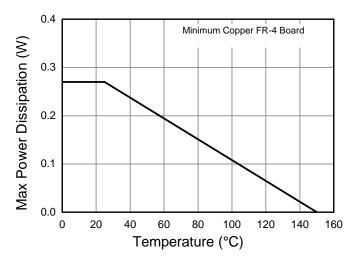
Notes:

<sup>6.</sup> Mounted on FR-4 PC Board with minimum recommended pad layout.

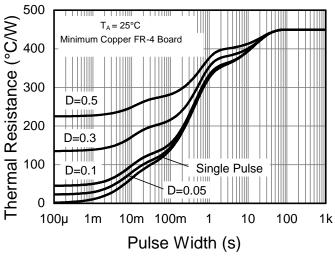
<sup>7. 150</sup>mW per element must not be exceeded.



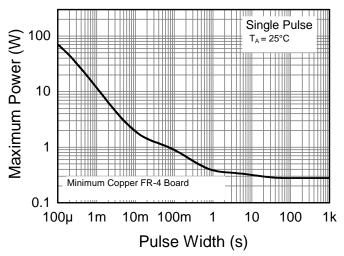
# **Thermal Characteristics and Derating Information**



# **Derating Curve**



**Transient Thermal Impedance** 



**Pulse Power Dissipation** 



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

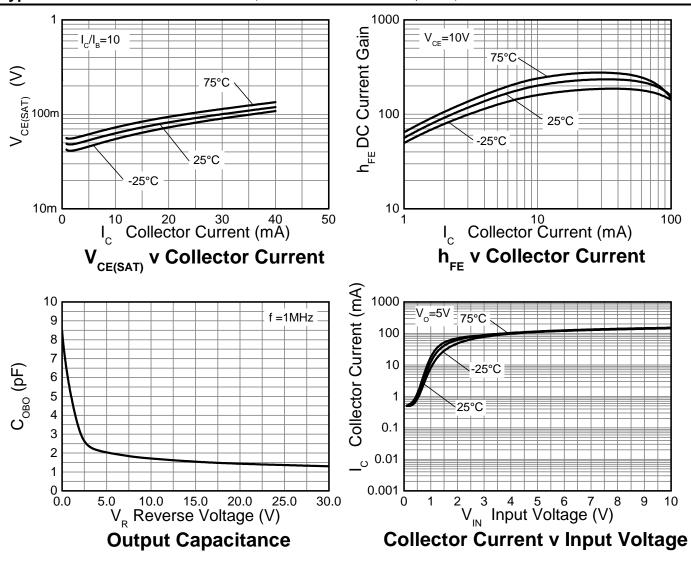
Characteristic	Symbol	Min	Тур	Max	Unit	Test Condition
Input Voltage	V <sub>I(OFF)</sub> (Note 8)	-0.5		_	\/	$V_{CC} = -5V, I_{O} = -100\mu A$
input voitage	V <sub>I(ON)</sub> (Note 9)		_	-1.1	V	$V_0 = -0.3V$ , $I_0 = -5mA$
Output Voltage	V <sub>O(ON)</sub>	_	-0.1	-0.3	V	$I_0/I_1 = -5mA / -0.25mA$
Input Current	II	_	_	-3.6	mA	V <sub>I</sub> = -5V
Output Current	I <sub>O(OFF)</sub>	_	_	-0.5	μA	$V_{CC} = -50V, V_{I} = 0V$
DC Current Gain	G <sub>I</sub>	80	_	_	_	$V_O = -5V, I_O = -10mA$
Input Resistor (R <sub>1</sub> ) Tolerance	$\Delta R_1$	-30	_	+30	%	_
Resistance Ratio Tolerance	$\Delta R_2/R_1$	-20	_	+20	%	_
Gain-Bandwidth Product (Note 10)	f <sub>T</sub>	_	250	_	MHz	$V_{CE} = -10V$ , $I_{E} = -5mA$ , $f = 100MHz$

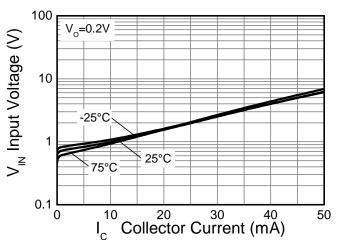
Notes:

<sup>8.</sup> Guarantees that the device will be switched OFF if the Input Voltage is less than -0.5V.
9. Guarantees that the device will be switched ON if the Input Voltage is more than -1.1V.
10. Transistor - For Reference Only.



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



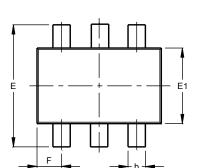


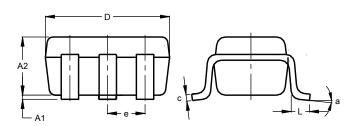
**Input Voltage v Collector Current** 



# **Package Outline Dimensions**

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





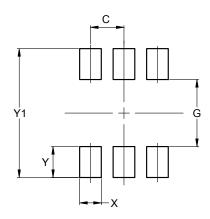
SOT363					
Dim	Min	Max	Тур		
A1	0.00	0.10	0.05		
A2	0.90	1.00	0.95		
b	0.10	0.30	0.25		
С	0.10	0.22	0.11		
D	1.80	2.20	2.15		
Е	2.00	2.20	2.10		
E1	1.15	1.35	1.30		
е	0.650 BSC				
F	0.40	0.45	0.425		
L	0.25	0.40	0.30		
а	0°	8°			
All Dimensions in mm					

# **Suggested Pad Layout**

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

### **SOT363**

**SOT363** 



Dimensions	Value
פווטופווזטוווט	(in mm)
С	0.650
G	1.300
Х	0.420
Y	0.600
Y1	2.500



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