

DUAL PNP PRE-BIASED SMALL SIGNAL SURFACE MOUNT TRANSISTOR

Features

- Epitaxial Planar Die Construction
- Ultra-Small Surface Mount Package
- Built-in Biasing Resistors
- Ideally Suited for Automated Assembly Processes
- **Totally Lead-Free & Fully RoHS compliant (Note 1)**
- **Halogen and Antimony Free. "Green" Device (Note 2)**
- **Qualified to AEC-Q101 Standards for High Reliability**

Part Number	R1 (NOM)	R2 (NOM)
DDA114EDJ	10K	10K
DDA144EDJ	47K	47K

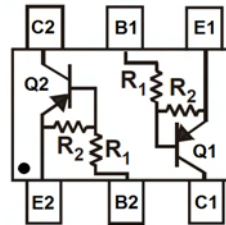
Mechanical Data

- Case: SOT963
- 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 annealed over Copper leadframe. Solderable per MIL-STD-202, Method 208
- Weight: 0.0027 grams (approximate)

SOT963



Top View



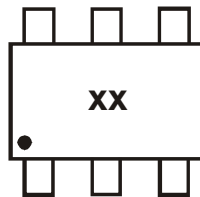
Pin-Out Top view

Ordering Information (Note 3)

Product	Marking	Reel size (inches)	Tape width (mm)	Quantity per reel
DDA114EDJ-7	TE	7	8	10,000
DDA144EDJ-7	TD	7	8	10,000

- Notes:
1. No purposely added lead. Fully EU Directive 2002/95/EC (RoHS) & 2011/65/EU (RoHS 2) compliant.
 2. Halogen and Antimony free "Green" products are defined as those which contain <900ppm bromine, <900ppm chlorine (<1500ppm total Br + Cl) and <1000ppm antimony compounds.
 3. For packaging details, go to our website at <http://www.diodes.com>.

Marking Information



xx = Product Type Marking Code
See Ordering Information

Maximum Ratings @T_A = 25°C unless otherwise specified

Characteristic	Symbol	Value	Unit
Collector-Base Voltage	V _{CBO}	-50	V
Collector-Emitter Voltage	V _{CEO}	-50	V
Collector Current	I _C	-100	mA

Thermal Characteristics @T_A = 25°C unless otherwise specified

Characteristic	Symbol	Value	Unit
Power Dissipation	P _D	(Note 4)	0.378 W
		(Note 5)	1.18 W
		(Note 6)	0.51 W
		(Note 7)	1.39 W
Thermal Resistance, Junction to Ambient Air	R _{θJA}	(Note 4)	330 °C/W
		(Note 5)	106 °C/W
		(Note 6)	245 °C/W
		(Note 7)	90 °C/W
Operating and Storage Temperature Range	T _J , T _{STG}	-55 to +150	°C

- Notes:
- 4. Device mounted on minimum FR-4 PCB pad layout with single die heated, 1 oz Copper in still air
 - 5. Device mounted on 25mm X 25mm FR-4 PCB pad layout with single die heated, 1 oz Copper in still air
 - 6. Same as Note 4, but with dual die heated
 - 7. Same as Note 5, but with dual die heated

Typical Thermal Characteristics

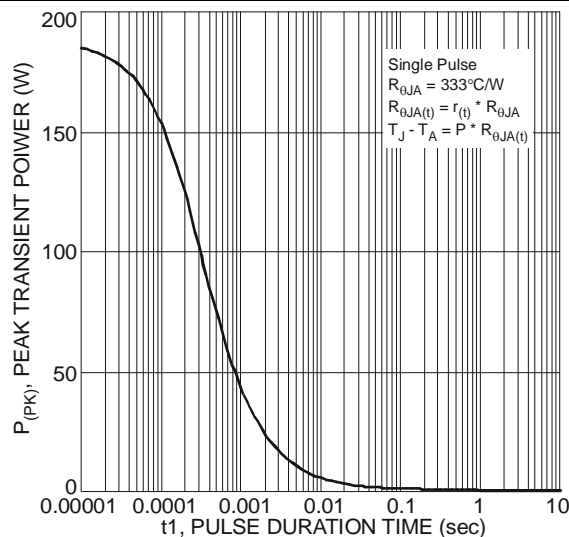


Fig. 1 Single Pulse Maximum Power Dissipation

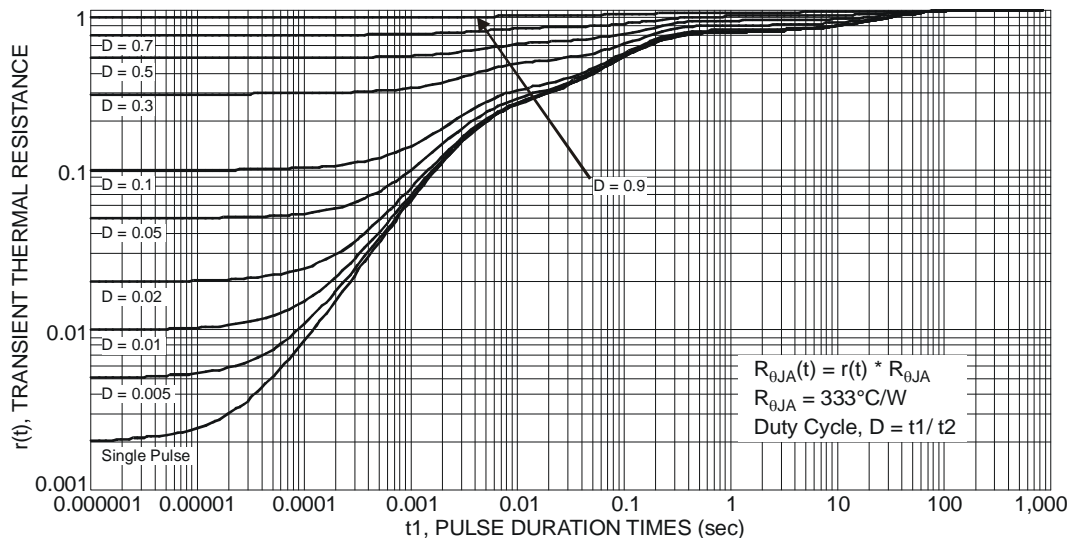


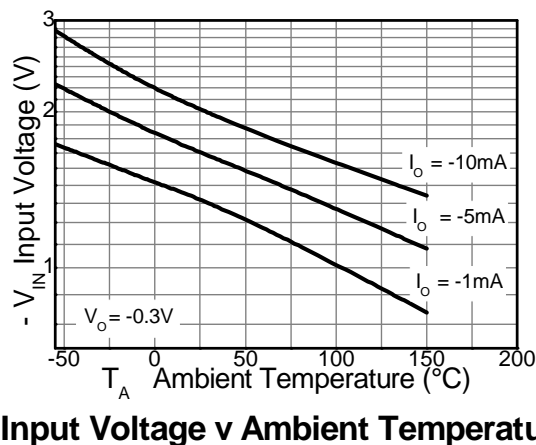
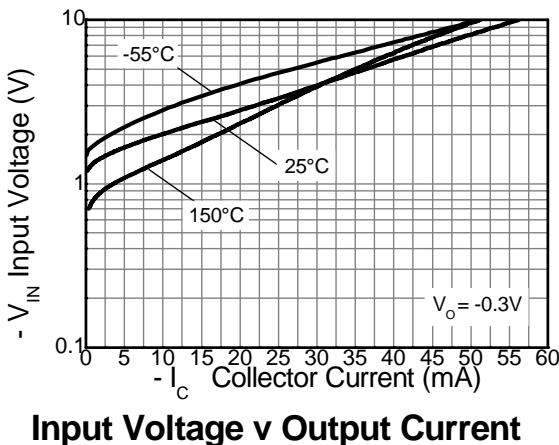
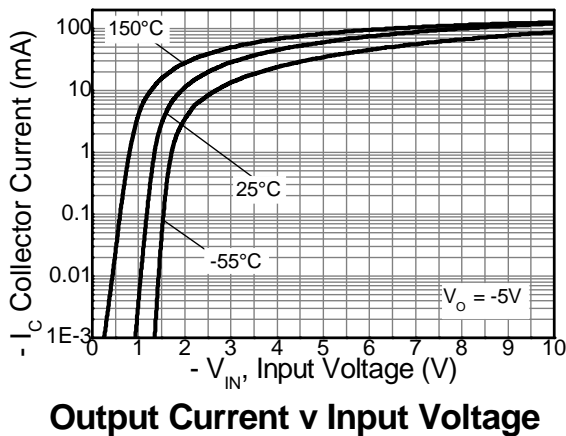
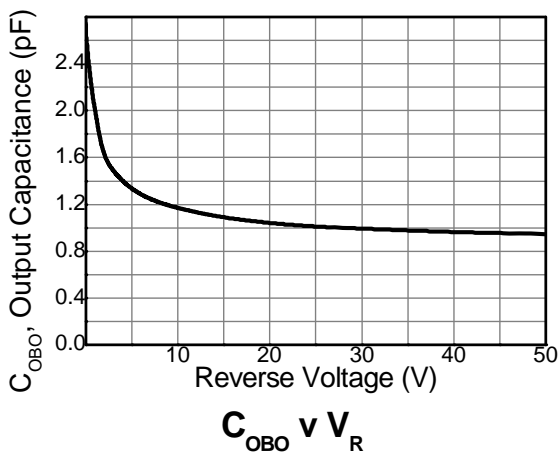
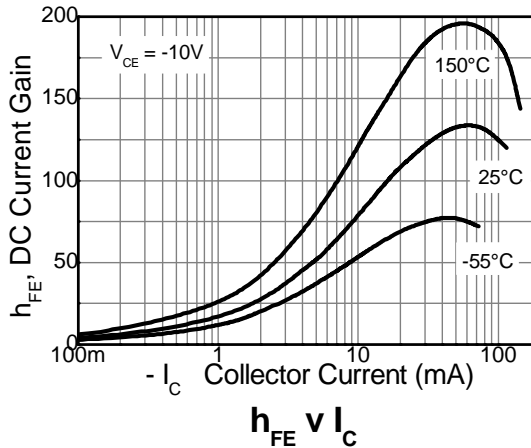
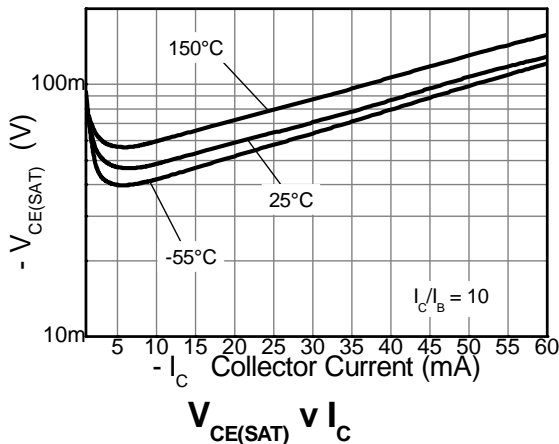
Fig. 2 Transient Thermal Resistance

Electrical Characteristics - (Q1 & Q2 Common) @ $T_A = 25^\circ\text{C}$ unless otherwise specified

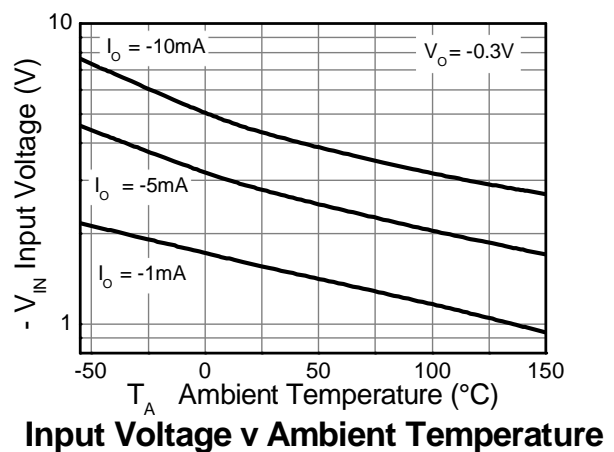
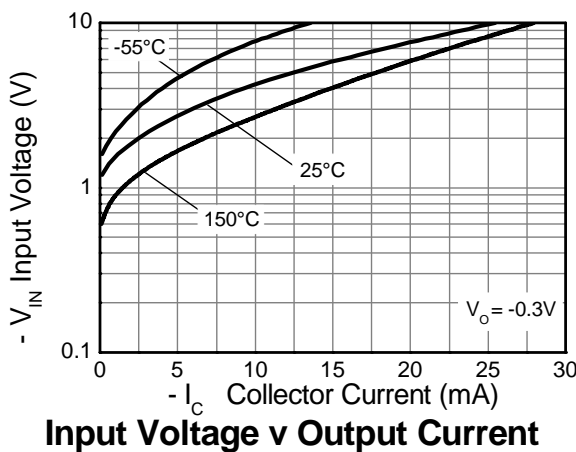
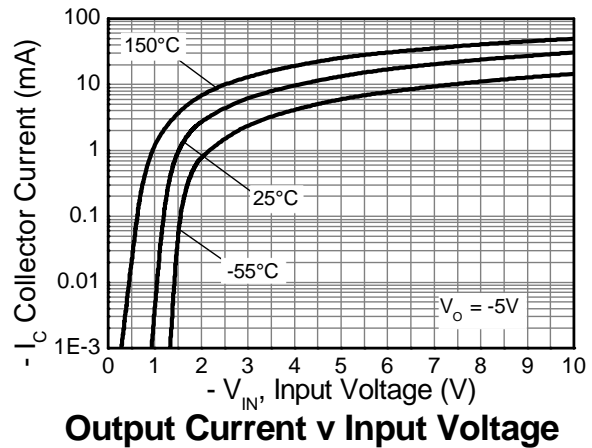
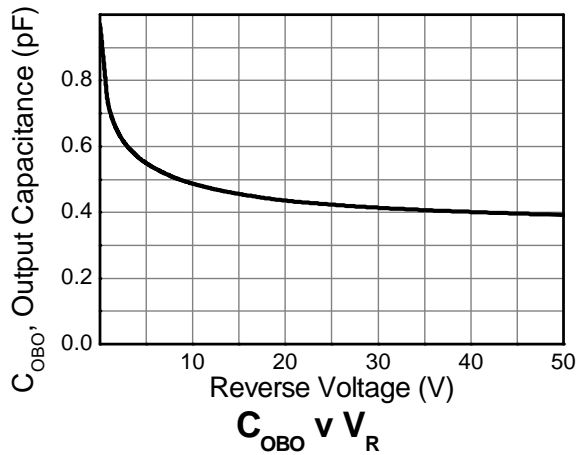
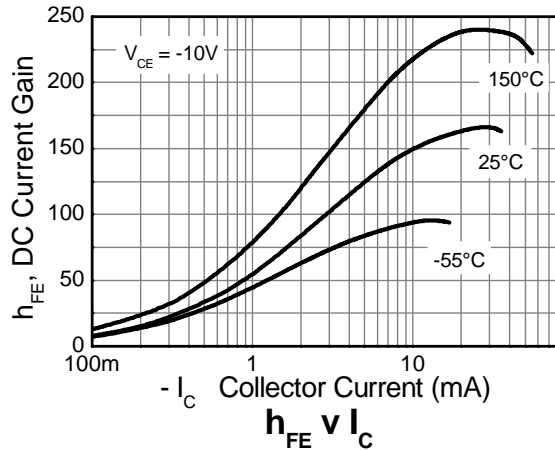
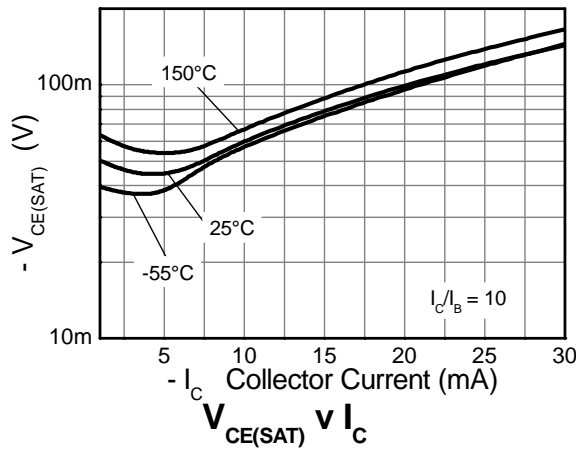
Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition	
Off Characteristics (Notes 8 & 9)							
Collector-Base Breakdown Voltage	BV_{CBO}	-50	—	—	V	$I_C = -50\mu\text{A}, I_E = 0$	
Collector-Emitter Breakdown Voltage	BV_{CEO}	-50	—	—	V	$I_C = -1.0\text{mA}, I_B = 0$	
Collector-Base Cut Off Current	I_{CBO}	—	—	-100	nA	$V_{CB} = -50\text{V}, I_E = 0$	
Collector-Emitter Cut Off Current, $I_{O(off)}$	I_{CEO}	—	—	-100	nA	$V_{CE} = -50\text{V}, I_B = 0$	
Emitter-Base Cut Off Current	DDA114EDJ DDA144EDJ	I_{EBO}	—	—	-500 -100	μA	$V_{EB} = -6\text{V}, I_C = 0$
On Characteristics (Notes 8 & 9)							
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$	—	—	-250	mV	$I_C = -10\text{mA}, I_B = -0.3\text{mA}$	
DC Current Gain	DDA114EDJ DDA144EDJ	h_{FE}	35 80	51 125	—	$V_{CE} = -10\text{V}, I_C = -5\text{mA}$	
Output On Voltage	DDA114EDJ DDA144EDJ	$V_{O(on)}$	—	—	-200 -200	mV $V_{CC} = -5\text{V}, V_B = -2.5\text{V}, R_L = 1.0\text{k}\Omega$ $V_{CC} = -5\text{V}, V_B = -3.5\text{V}, R_L = 1.0\text{k}\Omega$	
Output Off Voltage		$V_{O(off)}$	-4.9	—	—	V $V_{CC} = -5\text{V}, V_B = -0.5\text{V}, R_L = 1.0\text{k}\Omega$	
Input Resistance	DDA114EDJ DDA144EDJ	R_1	7.0 32.9	10 47	13 61.1	$\text{K}\Omega$ —	
Resistance Ratio		(R1/R2)	0.8	1.0	1.2	—	

Notes: 8. Short duration pulse test used to minimize self-heating effect. Pulse Test: Pulse width $t_p < 300\mu\text{s}$, Duty Cycle, $d \leq 2\%$.
9. Guaranteed by design.

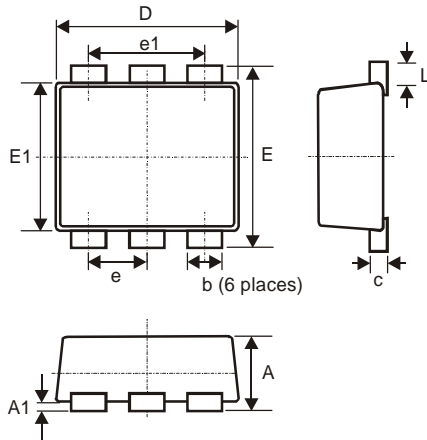
Electrical Characteristics– DDA114EDJ



Electrical Characteristics– DDA144EDJ

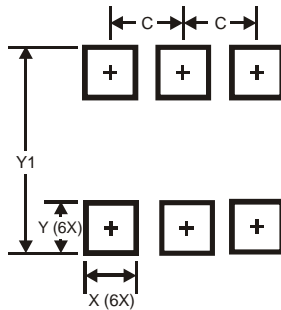


Package Outline Dimensions



SOT963			
Dim	Min	Max	Typ
A	0.40	0.50	0.45
A1	0	0.05	-
C	0.120	0.180	0.150
D	0.95	1.05	1.00
E	0.95	1.05	1.00
E1	0.75	0.85	0.80
L	0.05	0.15	0.10
b	0.10	0.20	0.15
e	0.35 Typ		
e1	0.70 Typ		
All Dimensions in mm			

Suggest Pad Layout



Dimensions	Value (in mm)
C	0.350
X	0.200
Y	0.200
Y1	1.100

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