

DDA(xxxx)U PNP PRE-BIASED SMALL SIGNAL DUAL SURFACE MOUNT TRANSISTOR

Features

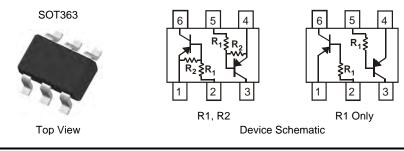
- Epitaxial Planar Die Construction
- Complementary NPN Types Available (DDC)
- Built-In Biasing Resistors
- "Lead Free", RoHS Compliant (Note 1)
- Halogen and Antimony Free "Green" Device (Note 2)
- Qualified to AEC-Q101 Standards for High Reliability

Part Number	R1 (NOM)	R2 (NOM)
DDA124EU	22ΚΩ	22ΚΩ
DDA144EU	47ΚΩ	47ΚΩ
DDA114YU	10KΩ	47ΚΩ
DDA123JU	2.2ΚΩ	47ΚΩ
DDA114EU	10KΩ	10KΩ

Mechanical Data

- Case: SOT363
- Case material: Molded Plastic. "Green" Molding Compound.
- Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminals: Matte Tin Finish
- Weight: 0.006 grams (approximate)

Part Number	R1 Only
DDA113TU	1KΩ
DDA143TU	4.7ΚΩ
DDA114TU	10ΚΩ



Ordering Information (Notes 3 & 4)

_					
Product	Grade	Marking	Reel size (inches)	Tape width (mm)	Quantity per reel
DDA124EU-7-F	Commercial	P17	7	8	3,000
DDA124EUQ-7-F	Automotive	P17	7	8	3,000
DDA124EUQ-13-F	Automotive	P17	13	8	10,000
DDA144EU-7-F	Commercial	P20	7	8	3,000
DDA144EUQ-7-F	Automotive	P20	7	8	3,000
DDA114YU-7-F	Commercial	P14	7	8	3,000
DDA114YUQ-7-F	Automotive	P14	7	8	3,000
DDA123JU-7-F	Commercial	P06	7	8	3,000
DDA114EU-7-F	Commercial	P13	7	8	3,000
DDA114EUQ-7-F	Automotive	P13	7	8	3,000
DDA113TU-7-F	Commercial	P01	7	8	3,000
DDA143TU-7-F	Commercial	P07	7	8	3,000
DDA143TUQ-7-F	Automotive	P07	7	8	3,000
DDA143TUQ-13-F	Automotive	P07	13	8	10,000
DDA114TU-7-F	Commercial	P12	7	8	3,000
DDA114TUQ-7-F	Automotive	P12	7	8	3,000
DDA114TUQ-13-F	Automotive	P12	13	8	10,000

Notes: 1. No purposefully added lead.

2. Diodes Inc's "Green" policy can be found on our website at http://www.diodes.com.

3. For packaging details, go to our website at http://www.diodes.com.

4. Products with Q-suffix are automotive grade. Automotive products are electrical and thermal the same as the commercial, except where specified.

Marking Information

	МY)	(Xq	
	Px	X	ΥM	

 $\begin{array}{l} \mathsf{Pxx} = \mathsf{Product} \ \mathsf{Type} \ \mathsf{Marking} \ \mathsf{Code} \ (\mathsf{See} \ \mathsf{Ordering} \ \mathsf{Information}) \\ \mathsf{YM} = \mathsf{Date} \ \mathsf{Code} \ \mathsf{Marking} \\ \mathsf{Y} = \mathsf{Year} \ (\mathsf{ex:} \ \mathsf{T} = 2006) \end{array}$

M = Month (ex: 9 = September)

Date Code Ke	у		-							-				
Year	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Code	R	S	Т	U	V	W	Х	Y	Z	А	В	С	D	E
Month	Jan	Feb	M	ar A	Apr	Мау	Jun	Jul	Aug	Se	p (Oct	Nov	Dec
Code	1	2	3	}	4	5	6	7	8	9		0	Ν	D



Maximum Ratings @T_A = 25°C unless otherwise specified

Chara	cteristic	Symbol	Value	Unit	
Supply Voltage (1) to (6) and (4)	to (3)	V _{CC}	-50	V	
Input Voltage (1) to (2) and (4) to (5)	DDA124EU DDA144EU DDA114YU DDA123JU DDA114EU DDA114EU DDA113TU DDA143TU DDA114TU	V _{IN}	+10 to -40 +10 to -40 +6 to -40 +5 to -12 +10 to -40 +5V max +5V max +5V max	V	
Output Current	DDA124EU DDA144EU DDA114YU DDA123JU DDA114EU DDA113TU DDA143TU DDA114TU	lo	-30 -30 -70 -100 -50 -100 -100 -100	mA	
Output Current		I _{C(MAX)}	-100	mA	

Thermal Characteristics @T_A = 25°C unless otherwise specified

Characteristic	Symbol	Value	Unit
Power Dissipation (Note 5)	PD	200	mW
Thermal Resistance, Junction to Ambient Air (Note 5)	$R_{ extsf{ heta}JA}$	625	°C/W
Operating and Storage Temperature Range	T _J , T _{STG}	-55 to +150	°C

Notes: 5. Mounted on FR4 PC Board with minimum recommended pad layout



Electrical Characteristics @T_A = 25°C unless otherwise specified

Characteristic (DDA113TU & DDA143TU & DDA114TU only)	Symbol	Min	Тур	Max	Unit	Test Condition
Collector-Base Breakdown Voltage	BV _{CBO}	-50			V	I _C = -50μA
Collector-Emitter Breakdown Voltage	BV _{CEO}	-50			V	I _C = -1mA
Emitter-Base Breakdown Voltage	BV _{EBO}	-5			V	I _E = -50μA
Collector Cutoff Current	I _{СВО}			-0.5	μA	V _{CB} = -50V
Emitter Cutoff Current	I _{EBO}			-0.5	μA	$V_{EB} = -4V$
Collector-Emitter Saturation Voltage	V _{CE(sat)}			-0.3	V	I _C /I _B = -2.5mA / -0.25mA DDA143TU I _C /I _B = -1mA / -0.1mA DDA114TU I _C /I _B = -10mA / -1mA DDA113TU
DC Current Transfer Ratio	h _{FE}	100 160	250 -	600 -		$\label{eq:lc} \begin{split} I_C &= -1 \text{mA}, \ V_{CE} &= -5 \text{V} \\ I_C &= -1 \text{mA}, \ V_{CE} &= -5 \text{V} \\ \end{split} \qquad \text{DDA143TUQ}$
Input Resistor (R ₁) Tolerance	ΔR_1	-30		+30	%	—
Gain-Bandwidth Product (Note 6)	f⊤	—	250		MHz	V _{CE} = -10V, I _E = 5mA, f = 100MHz

Characterist	ic	Symbol	Min	Тур	Max	Unit	Test Condition
	DDA124EU DDA144EU DDA114YU DDA123JU DDA123JU DDA114EU	VI(off)	-0.5 -0.5 -0.3 -0.5 -0.5	-1.1 -1.1 — -1.1			V _{CC} = -5V, I _O = -100μA
Input Voltage	DDA124EU DDA144EU DDA114YU DDA123JU DDA123JU DDA114EU	V _{I(on)}		-1.9 -1.9 _1.9	-3.0 -3.0 -1.4 -1.1 -3.0	V	$V_{O} = -0.3, I_{O} = -5mA$ $V_{O} = -0.3, I_{O} = -2mA$ $V_{O} = -0.3, I_{O} = -1mA$ $V_{O} = -0.3, I_{O} = -5mA$ $V_{O} = -0.3, I_{O} = -10mA$
Output Voltage	DDA124EU DDA144EU DDA114YU DDA123JU DDA123JU DDA114EU	VO(on)		-0.1	-0.3	V	I _O /I _I = -10mA / -0.5mA I _O /I _I = -10mA / -0.5mA I _O /I _I = -5mA / -0.25mA I _O /I _I = -5mA / -0.25mA I _O /I _I = -10mA / -0.5mA
Input Current	DDA124EU DDA144EU DDA114YU DDA114YU DDA123JU DDA114EU	lı		_	-0.36 -0.18 -0.88 -3.6 -0.88	mA	V _I = -5V
Output Current		I _{O(off)}			-0.5	μA	$V_{CC} = -50V, V_{I} = -0V$
DC Current Gain	DDA124EU DDA124EUQ DDA144EU DDA114YU DDA114YU DDA123JU DDA114EU	Gı	56 60 68 80 30	_			$V_{O} = -5V, I_{O} = -5mA$ $V_{O} = -5V, I_{O} = -5mA$ $V_{O} = -5V, I_{O} = -5mA$ $V_{O} = -5V, I_{O} = -10mA$ $V_{O} = -5V, I_{O} = -10mA$ $V_{O} = -5V, I_{O} = -5mA$
Input Resistor (R1) Tolerance		ΔR_1	-30		+30	%	
Resistance Ratio Tolerance		R ₂ /R ₁	-20	_	+20	%	
Gain-Bandwidth Product		f⊤		250		MHz	V _{CE} = -10V, I _E = -5mA, f = 100MHz

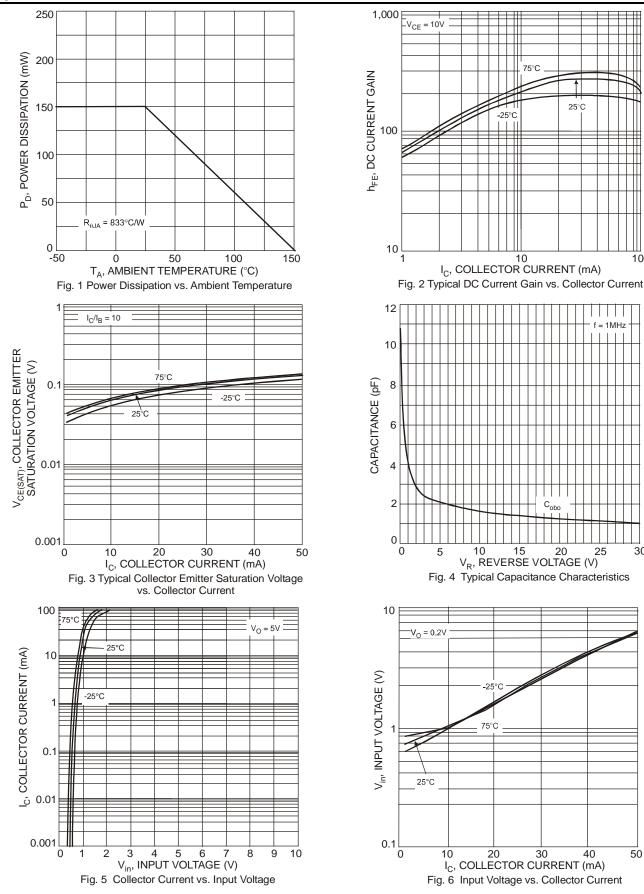
Notes: 6. Transistor - For Reference Only



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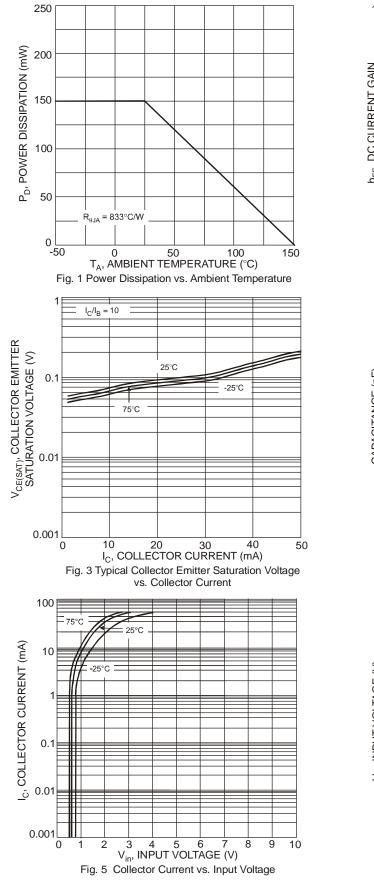
Typical Curves – DDA123JU

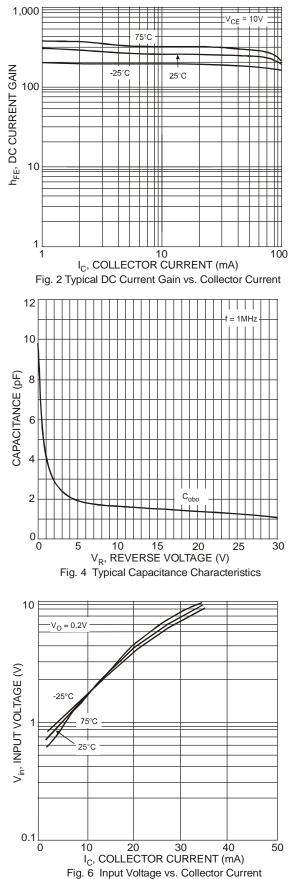


DDA(xxxx)U Document number: DS30346 Rev. 10 - 2 50



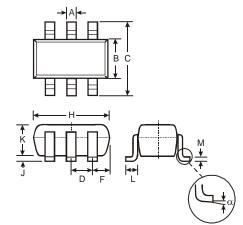
Typical Curves – DDA114TU





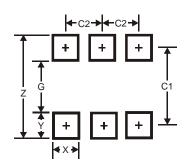


Package Outline Dimensions



	SOT363						
Dim	Min	Max					
Α	0.10	0.30					
В	1.15	1.35					
С	2.00	2.20					
D	0.65	Тур					
F	0.40	0.45					
н	1.80	2.20					
J	0	0.10					
κ	0.90	1.00					
L	0.25	0.40					
М	0.10	0.22					
α	0°	8°					
All Di	mensions	in mm					

Suggested Pad Layout



Dimensions	Value (in mm)
Z	2.5
G	1.3
Х	0.42
Y	0.6
C1	1.9
C2	0.65



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