NEW PRODUCT

DDA (xxxx) U

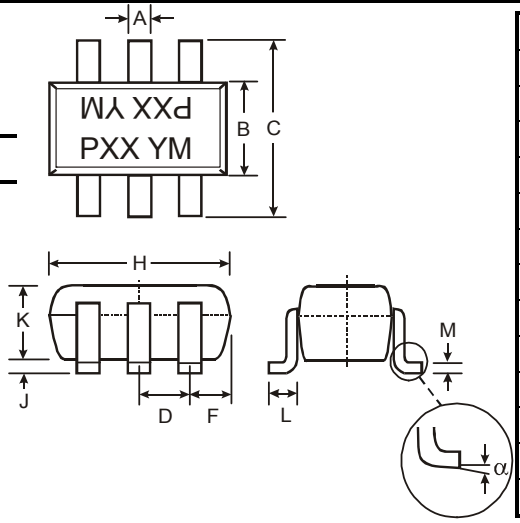
PNP PRE-BIASED SMALL SIGNAL DUAL SURFACE MOUNT TRANSISTOR

Features

- Epitaxial Planar Die Construction
- Built-In Biasing Resistors
- **Lead Free/RoHS Compliant (Note 3)**
- **"Green" Device (Note 4 and 5)**

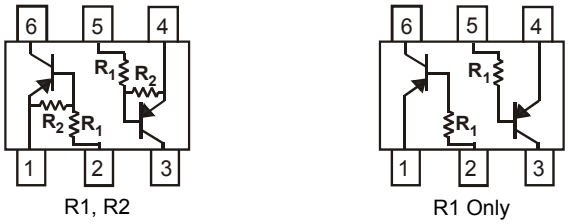
Mechanical Data

- Case: SOT-363
- Case Material: Molded Plastic. UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020C
- Terminals: Solderable per MIL-STD-202, Method 208
- Lead Free Plating (Matte Tin Finish annealed over Alloy 42 leadframe).
- Terminal Connections: See Diagram
- Marking Information: See Diagrams & Page 5
- Ordering Information: See Page 5
- Weight: 0.006 grams (approximate)



SOT-363		
Dim	**Min**	**Max**
A	0.10	0.30
B	1.15	1.35
C	2.00	2.20
D	0.65 Nominal	
F	0.30	0.40
H	1.80	2.20
J	—	0.10
K	0.90	1.00
L	0.25	0.40
M	0.10	0.25
α	0°	8°
All Dimensions in mm		

P/N	R1	R2	MARKING
DDA124EU	22KΩ	22KΩ	P17
DDA144EU	47KΩ	47KΩ	P20
DDA114YU	10KΩ	47KΩ	P14
DDA123JU	2.2KΩ	47KΩ	P06
DDA114EU	10KΩ	10KΩ	P13
DDA113TU	1KΩ	—	P01
DDA143TU	4.7KΩ	—	P07
DDA114TU	10KΩ	—	P12



SCHEMATIC DIAGRAM

Maximum Ratings @T_A = 25°C unless otherwise specified

Characteristic		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 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	I_O	-30 -30 -70 -100 -50 -100 -100 -100	mA
Output Current	All	I_C (Max)	-100	mA
Power Dissipation (Total)		P_d	200	mW
Thermal Resistance, Junction to Ambient Air	(Note 1)	$R_{\theta JA}$	625	°C/W

Notes:
1. Mounted on FR4 PC Board with recommended pad layout at http://www.diodes.com/datasheets/ap02001.pdf.
2. 150mW per element must not be exceeded.
3. No purposefully added lead.
4. Diodes Inc.'s "Green" policy can be found on our website at http://www.diodes.com/products/lead_free/index.php.
5. Product manufactured with Date Code UO (week 40, 2007) and newer are built with Green Molding Compound. Product manufactured prior to Date Code UO are built with Non-Green Molding Compound and may contain Halogens or Sb2O3 Fire Retardants.

NEW PRODUCT

Electrical Characteristics @T_A = 25°C unless otherwise specified

Characteristic (DDA113TU & DDA143TU & DDA114TU only)	Symbol	Min	Typ	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_{CBO}	—	—	-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	250	600	—	I_C = -1mA, V_{CE} = -5V
Input Resistor (R_1) Tolerance	ΔR_1	-30	—	+30	%	—
Gain-Bandwidth Product*	f_T	—	250	—	MHz	V_{CE} = -10V, I_E = 5mA, f = 100MHz

Characteristic		Symbol	Min	Typ	Max	Unit	Test Condition
Input Voltage	DDA124EU DDA144EU DDA114YU DDA123JU DDA114EU	$V_{I(off)}$	-0.5 -0.5 -0.3 -0.5 -0.5	-1.1 -1.1 — — -1.1	—	V	V_{CC} = -5V, I_O = -100μA
	DDA124EU DDA144EU DDA114YU DDA123JU DDA114EU	$V_{I(on)}$	—	-1.9 -1.9 — — –1.9	-3.0 -3.0 -1.4 -1.1 -3.0		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 DDA114EU	$V_{O(on)}$	—	-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 DDA123JU DDA114EU	I_I	—	—	-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 DDA144EU DDA114YU DDA123JU DDA114EU	G_I	56 68 68 80 30	—	—	—	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 (R_1) Tolerance		ΔR_1	-30	—	+30	%	—
Resistance Ratio Tolerance		R_2/R_1	-20	—	+20	%	—
Gain-Bandwidth Product*		f_T	—	250	—	MHz	V_{CE} = -10V, I_E = -5mA, f = 100MHz

* Transistor - For Reference Only

Typical Curves – DDA123JU One Section

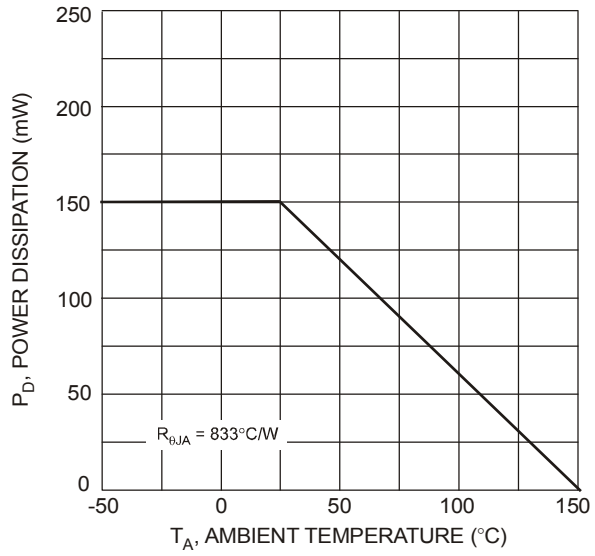


Fig. 1 Derating Curve

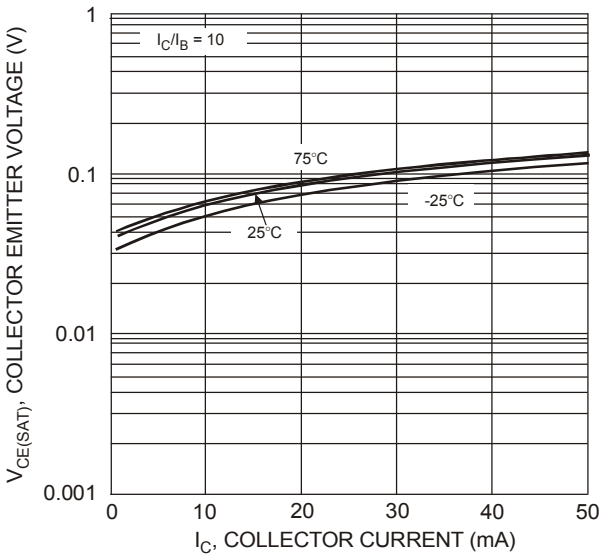


Fig. 2 $V_{CE(SAT)}$ vs. I_C

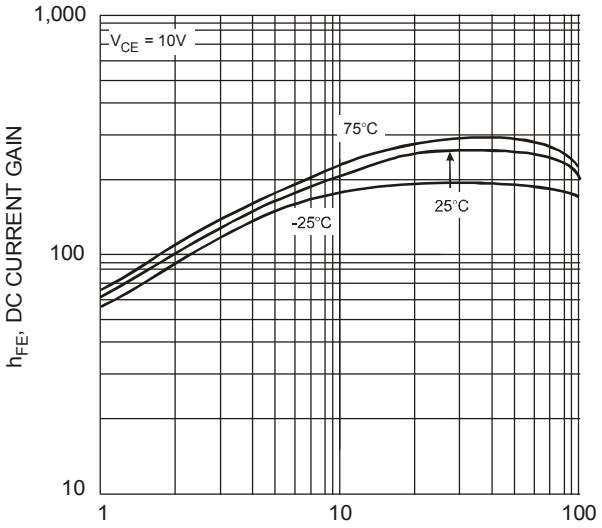


Fig. 3 DC Current Gain

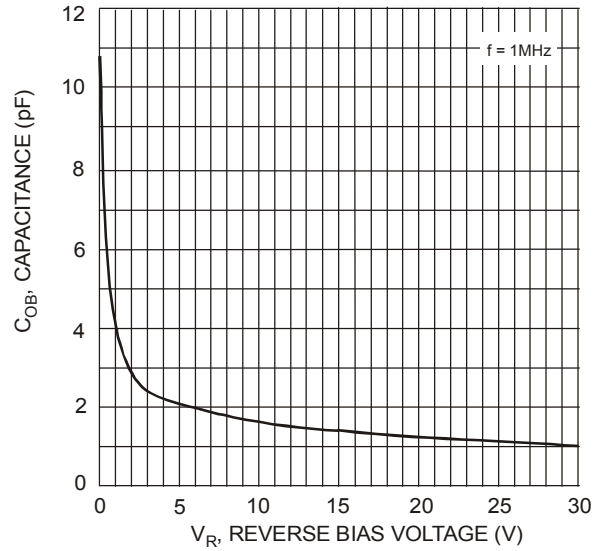


Fig. 4 Output Capacitance

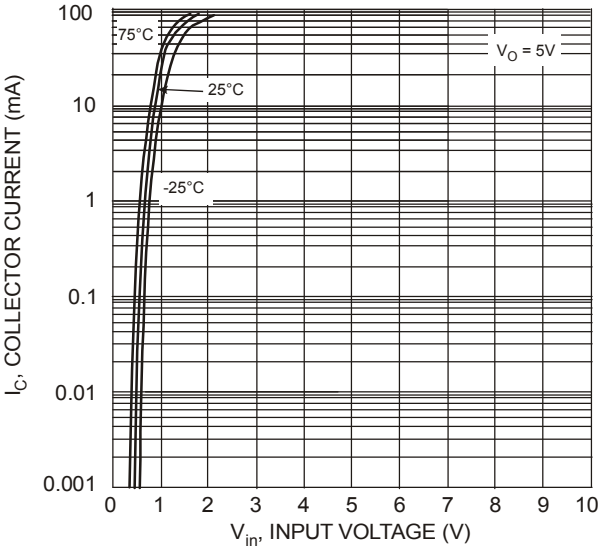


Fig. 5 Collector Current vs. Input Voltage

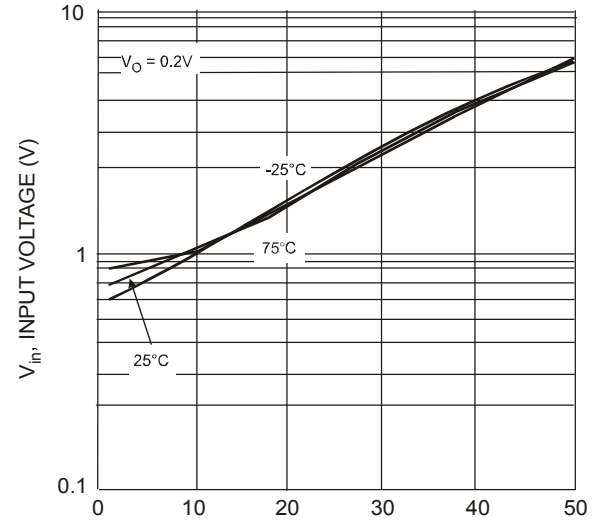


Fig. 6 Input Voltage vs. Collector Current

Typical Curves – DDA114TU One Section

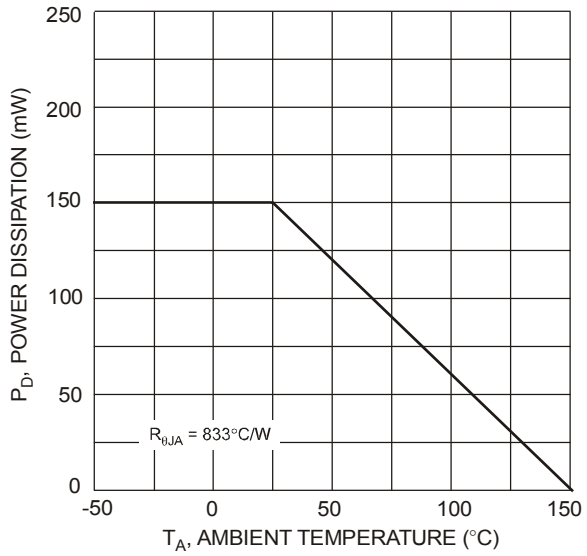


Fig. 1 Derating Curve

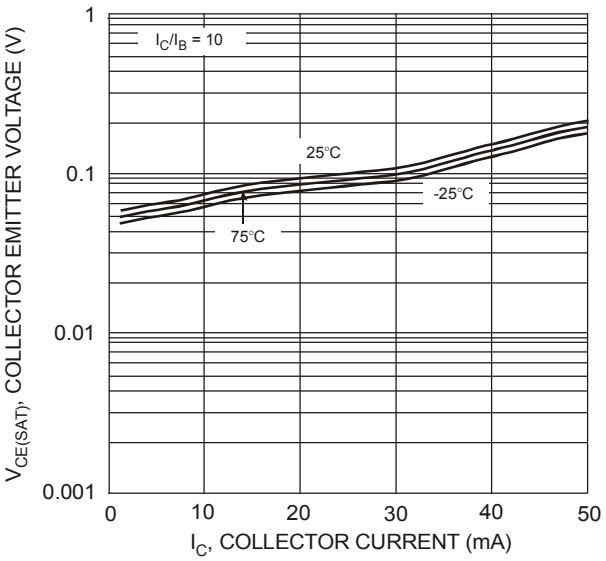


Fig. 2 $V_{CE(SAT)}$ vs. I_C

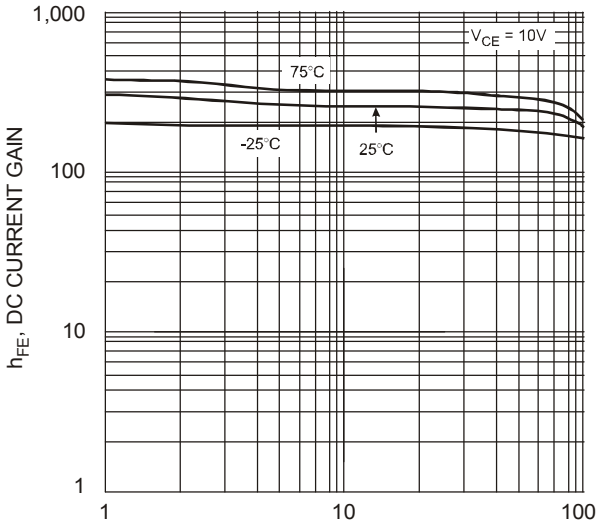


Fig. 3 DC Current Gain

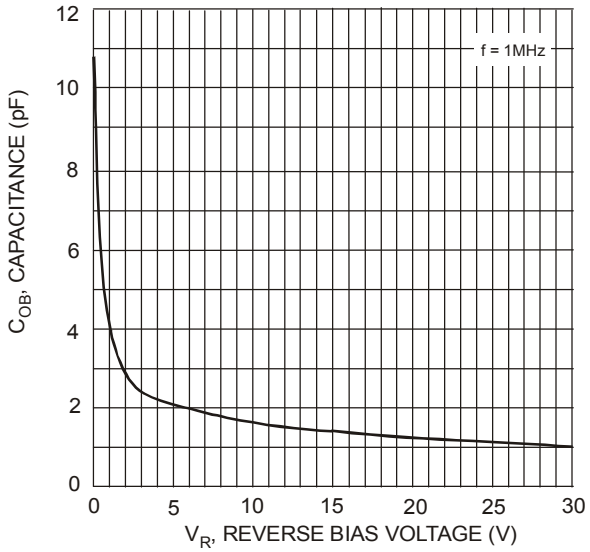


Fig. 4 Output Capacitance

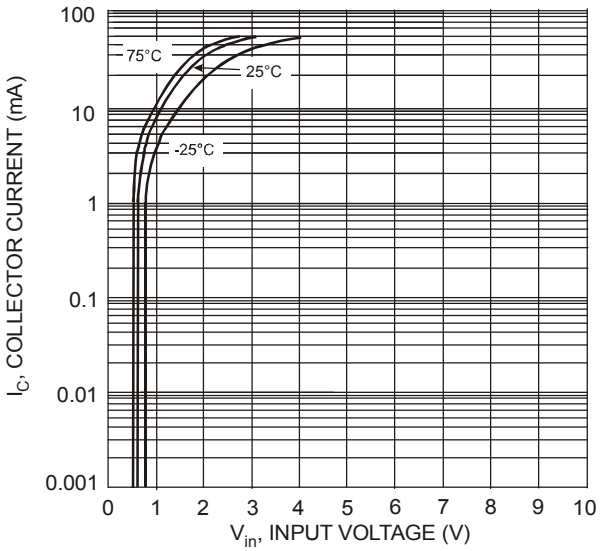


Fig. 5 Collector Current vs. Input Voltage

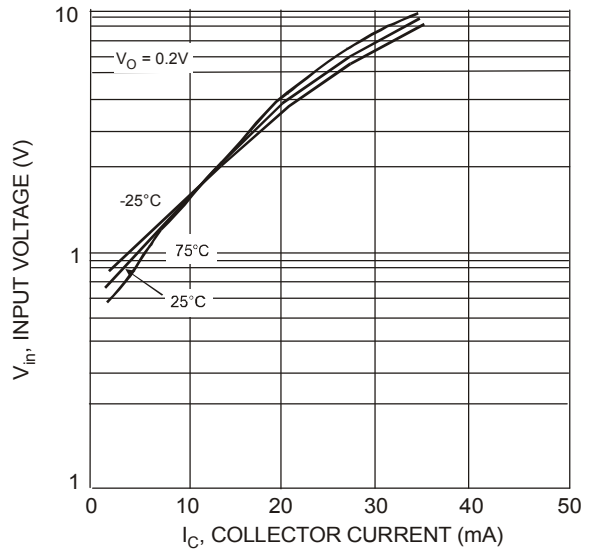


Fig. 6 Input Voltage vs. Collector Current

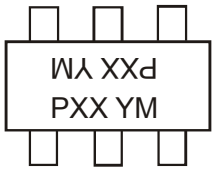
NEW PRODUCT

Ordering Information (Note 6)

Device	Packaging	Shipping
DDA124EU-7-F	SOT-363	3000/Tape & Reel
DDA144EU-7-F	SOT-363	3000/Tape & Reel
DDA114YU-7-F	SOT-363	3000/Tape & Reel
DDA123JU-7-F	SOT-363	3000/Tape & Reel
DDA114EU-7-F	SOT-363	3000/Tape & Reel
DDA113TU-7-F	SOT-363	3000/Tape & Reel
DDA143TU-7-F	SOT-363	3000/Tape & Reel
DDA114TU-7-F	SOT-363	3000/Tape & Reel

Notes: 6. For packaging details, go to our website at http://www.diodes.com/datasheets/ap02007.pdf.

Marking Information



PXX = Product Type Marking Code
See Page 1 Table
YM = Date Code Marking
Y = Year ex: T = 2006
M = Month ex: 9 = September

Date Code Key

Year	2004	2005	2006	2007	2008	2009	2010	2011	2012
Code	R	S	T	U	V	W	X	Y	Z

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