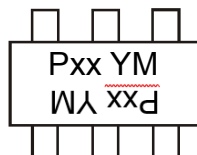


Marking Information



Pxx = Product Type Marking Code (See Ordering Information)
 YM = Date Code Marking
 Y = Year (ex: 1 = 2021)
 M = Month (ex: 9 = September)

Date Code Key

Year	2018		2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Code	F		I	J	K	L	M	N	O	P	R	S
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

Absolute 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)	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	I _O	-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 (Notes 6, 7)	P _D	200	mW
Thermal Resistance, Junction to Ambient Air (Note 6)	R _{θJA}	625	°C/W
Operating and Storage Temperature Range	T _J , T _{STG}	-55 to +150	°C

Notes: 6. Mounted on FR-4 PC Board with minimum recommended pad layout.
 7. 150mW per element must not be exceeded.

Electrical Characteristics (@ $T_A = +25^\circ\text{C}$, unless otherwise specified.)

Characteristic (DDA113TU & DDA143TU & DDA114TU only)	Symbol	Min	Typ	Max	Unit	Test Condition
Collector-Base Breakdown Voltage	BV_{CBO}	-50	—	—	V	$I_C = -50\mu\text{A}$
Collector-Emitter Breakdown Voltage	BV_{CEO}	-50	—	—	V	$I_C = -1\text{mA}$
Emitter-Base Breakdown Voltage	BV_{EBO}	-5	—	—	V	$I_E = -50\mu\text{A}$
Collector Cutoff Current	I_{CBO}	—	—	-0.5	μA	$V_{CB} = -50\text{V}$
Emitter Cutoff Current	I_{EBO}	—	—	-0.5	μA	$V_{EB} = -4\text{V}$
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$	—	—	-0.3	V	$I_C/I_B = -2.5\text{mA} / -0.25\text{mA}$ DDA143TU $I_C/I_B = -1\text{mA} / -0.1\text{mA}$ DDA114TU $I_C/I_B = -10\text{mA} / -1\text{mA}$ DDA113TU
DC Current Transfer Ratio	h_{FE}	100 160	250 —	600 600	—	$I_C = -1\text{mA}, V_{CE} = -5\text{V}$ $I_C = -1\text{mA}, V_{CE} = -5\text{V}$ DDA143TU/Q
Input Resistor (R_1) Tolerance	ΔR_1	-30	—	+30	%	—
Gain-Bandwidth Product (Note 8)	f_T	—	250	—	MHz	$V_{CE} = -10\text{V}, I_E = 5\text{mA}, f = 100\text{MHz}$

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	$V_{CC} = -5V, I_O = -100\mu A$
	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 DDA124EUQ DDA144EU DDA114YU DDA123JU DDA114EU	G_I	56 60 68 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 (R_1) Tolerance		ΔR_1	-30	—	+30	%	—
Resistance Ratio Tolerance		R_2/R_1	-20	—	+20	%	—
Gain-Bandwidth Product (Note 8)		f_T	—	250	—	MHz	$V_{CE} = -10V, I_E = -5mA, f = 100MHz$

Note: 8. Transistor - For Reference Only.

Typical Curves – DDA123JU (@ $T_A = +25^\circ\text{C}$, unless otherwise specified.)

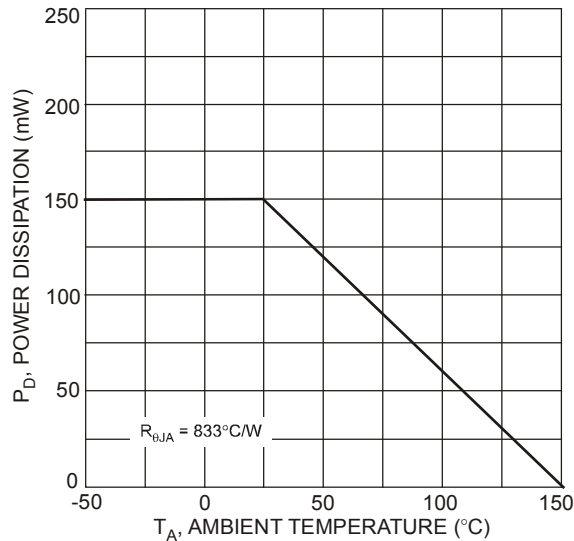


Fig. 1 Power Dissipation vs. Ambient Temperature

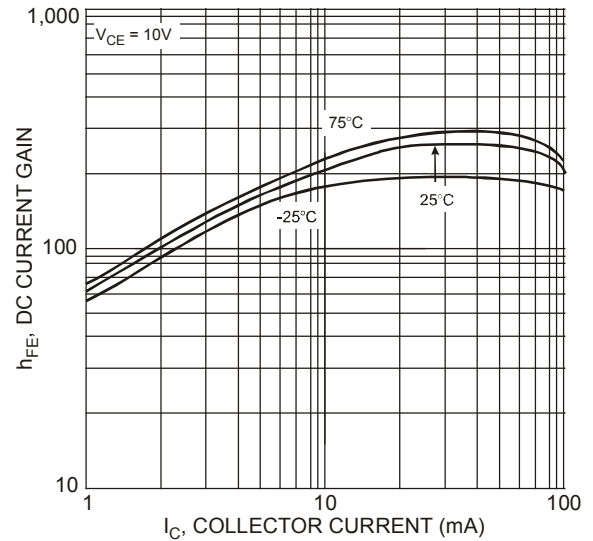


Fig. 2 Typical DC Current Gain vs. Collector Current

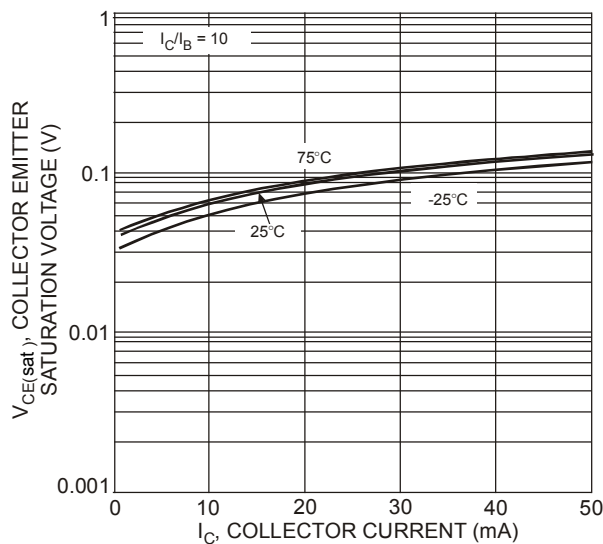


Fig. 3 Typical Collector Emitter Saturation Voltage vs. Collector Current

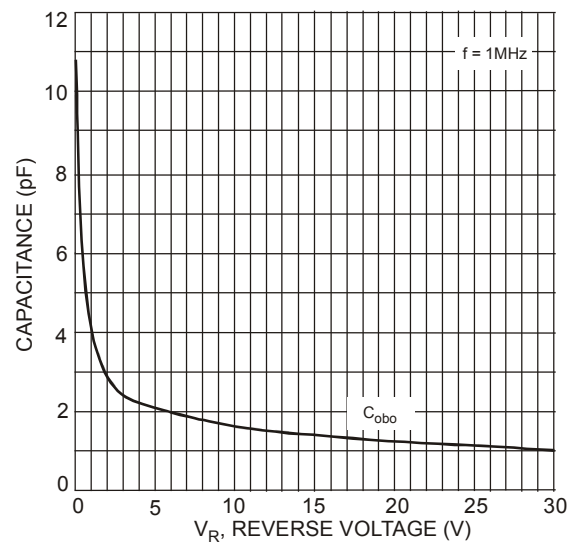


Fig. 4 Typical Capacitance Characteristics

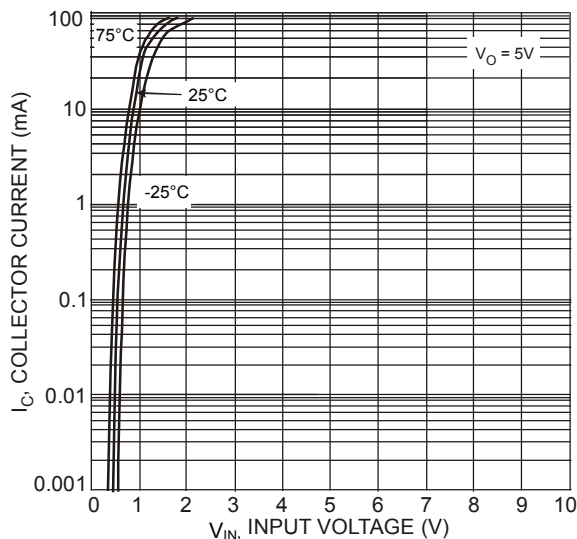


Fig. 5 Collector Current vs. Input Voltage

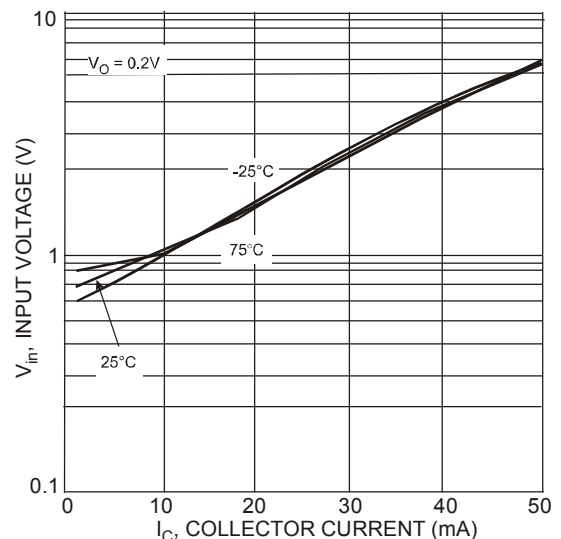


Fig. 6 Input Voltage vs. Collector Current

Typical Curves – DDA114TU (@ $T_A = +25^\circ\text{C}$, unless otherwise specified.)

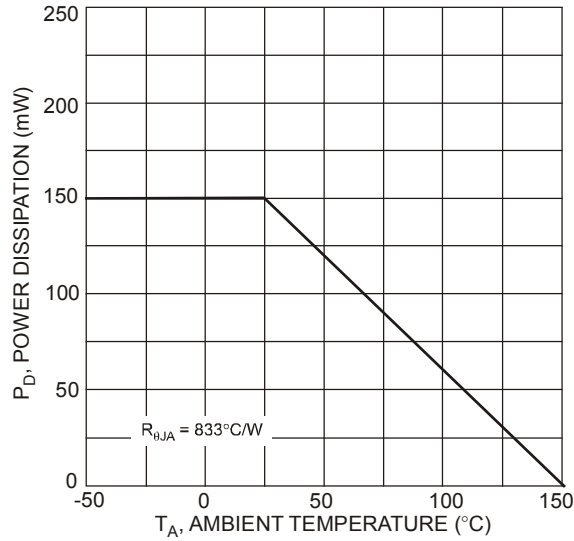


Fig.7 Power Dissipation vs. Ambient Temperature

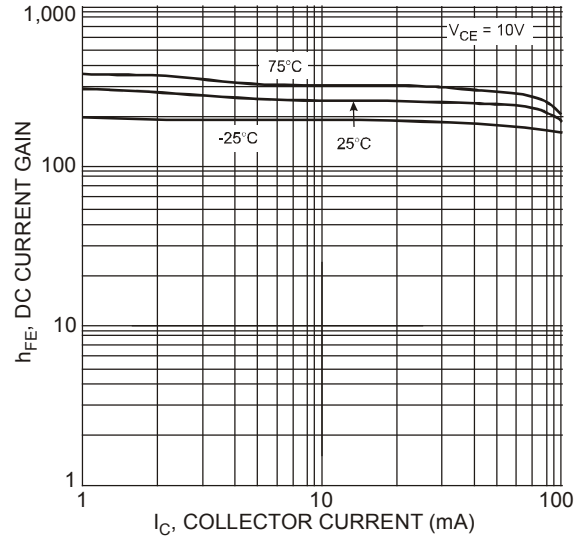


Fig.8 Typical DC Current Gain vs. Collector Current

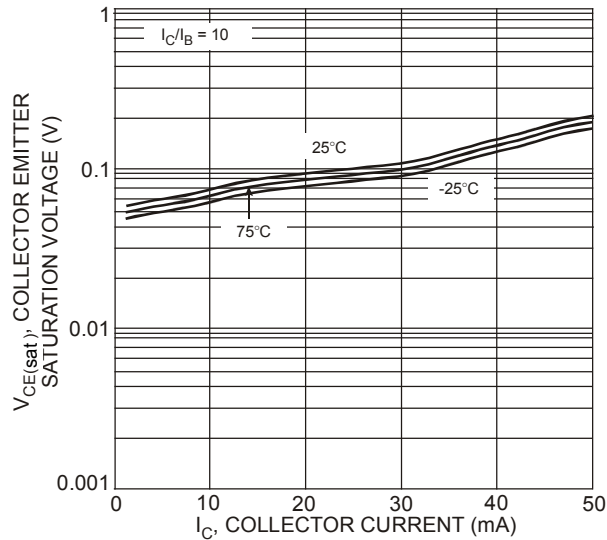


Fig.9 Typical Collector Emitter Saturation Voltage vs. Collector Current

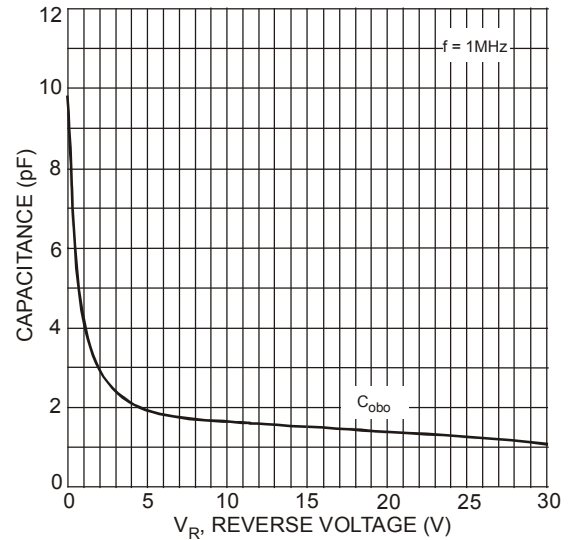


Fig.10 Typical Capacitance Characteristics

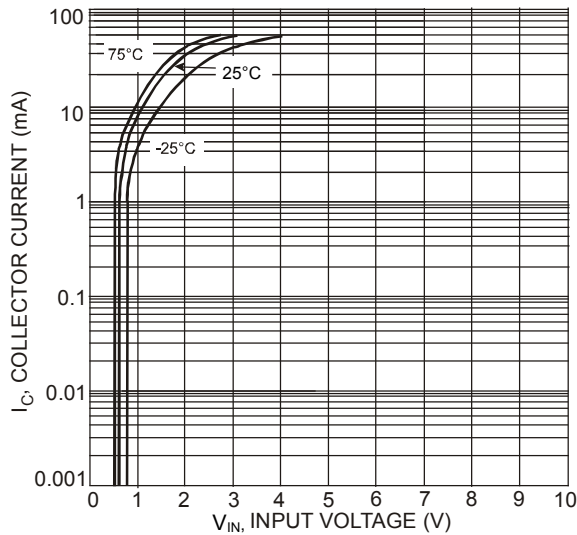


Fig.11 Collector Current vs. Input Voltage

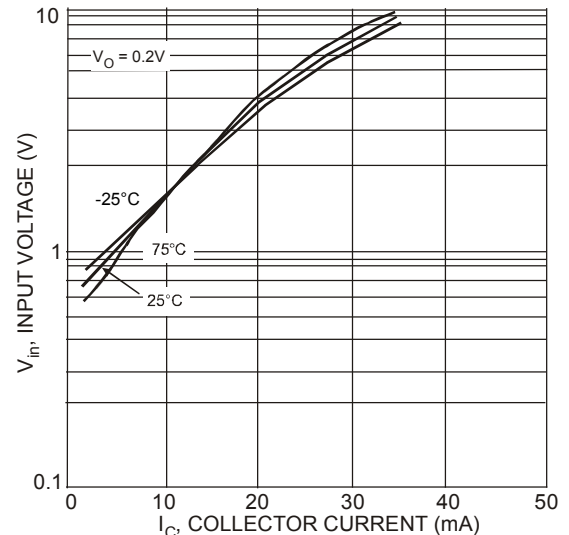
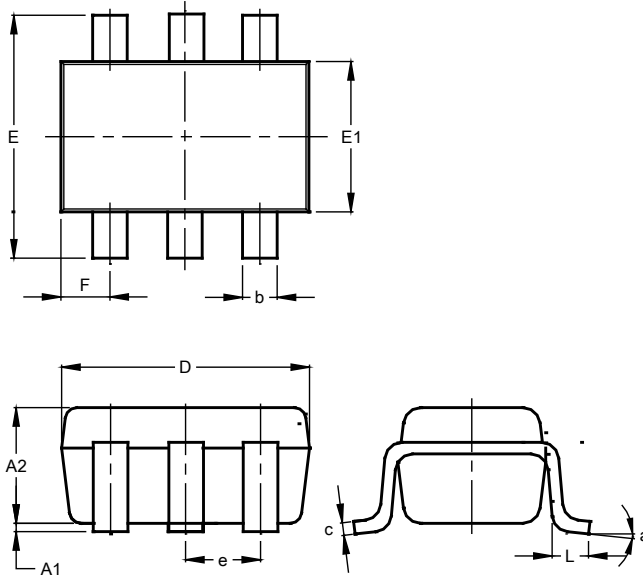


Fig.12 Input Voltage vs. Collector Current

Package Outline Dimensions

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

SOT363

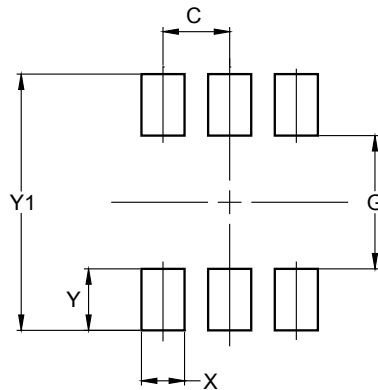


SOT363			
Dim	Min	Max	Typ
A1	0.00	0.10	0.05
A2	0.90	1.00	0.95
b	0.10	0.30	0.25
c	0.10	0.22	0.11
D	1.80	2.20	2.15
E	2.00	2.20	2.10
E1	1.15	1.35	1.30
e	0.650 BSC		
F	0.40	0.45	0.425
L	0.25	0.40	0.30
a	0°	8°	--
All Dimensions in mm			

Suggested Pad Layout

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

SOT363



Dimensions	Value (in mm)
C	0.650
G	1.300
X	0.420
Y	0.600
Y1	2.500

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