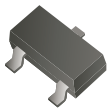
Digital Transistor

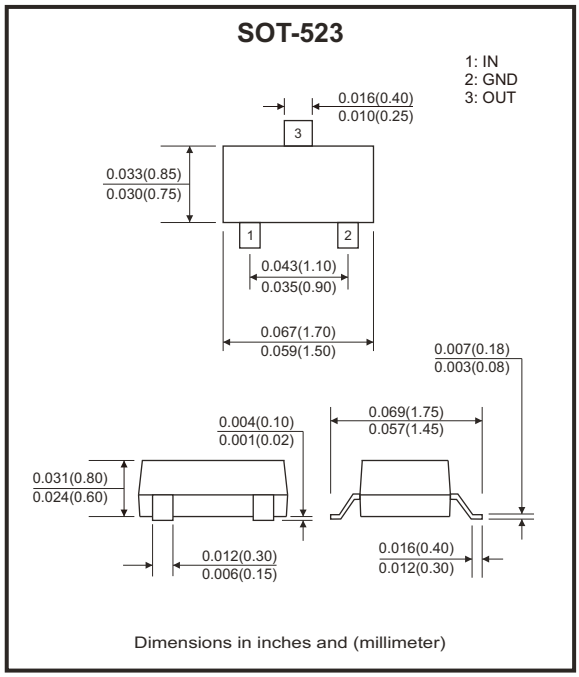
ADTAxxxxE-HF Series (PNP)

RoHS Device
Halogen Free



Features

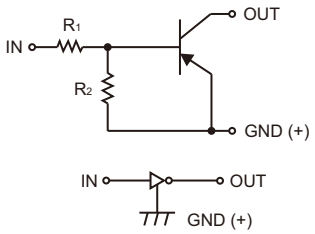
- Epitaxial planar die construction.
- Built-in biasing resistors, $R_1 \neq R_2$.
- AEC-Q101 Qualified.



Mechanical data

- Case: SOT-523, molded plastic.
- Mounting position: Any.

Circuit Diagram



Maximum Ratings (at Ta=25°C unless otherwise noted)

Parameter		Symbol	Value	Units
Supply voltage		V_{CC}	-50	V
Input voltage	ADTA113ZE-HF ADTA114WE-HF ADTA114YE-HF ADTA123JE-HF ADTA123YE-HF ADTA143XE-HF ADTA143ZE-HF	V_{IN}	+5 to -10 +10 to -30 +6 to -40 +5 to -12 +5 to -12 +7 to -20 +5 to -30	V
Output current	ADTA113ZE-HF ADTA114WE-HF ADTA114YE-HF ADTA123JE-HF ADTA123YE-HF ADTA143XE-HF ADTA143ZE-HF	I_O	-100 -100 -70 -100 -100 -100 -100	mA
Max. output current		I_C	-100	mA
Power dissipation		P_D	150	mW
Thermal resistance, junction to ambient air		$R_{\theta JA}$	833	°C/W
Operating and storage and temperature range		T_j , T_{STG}	-55 to +150	°C

Electrical Characteristics (at Ta=25°C unless otherwise noted)

Parameter		Symbol	Test conditions	Min	Typ	Max	Units
Input voltage	ADTA113ZE-HF ADTA114WE-HF ADTA114YE-HF ADTA123JE-HF ADTA123YE-HF ADTA143XE-HF ADTA143ZE-HF	$V_{I(off)}$	V_{CC} = -5V, I_O = -100μA	-0.3 -0.8 -0.3 -0.5 -0.3 -0.3 -0.5			V
Input voltage	ADTA113ZE-HF ADTA114WE-HF ADTA114YE-HF ADTA123JE-HF ADTA123YE-HF ADTA143XE-HF ADTA143ZE-HF	$V_{I(on)}$	V_O = -0.3V, I_O = -20mA V_O = -0.3V, I_O = -2mA V_O = -0.3V, I_O = -1mA V_O = -0.3V, I_O = -5mA V_O = -0.3V, I_O = -20mA V_O = -0.3V, I_O = -20mA V_O = -0.3V, I_O = -5mA			-3.0 -3.0 -1.4 -1.1 -3.0 -2.5 -1.3	
Output voltage	ADTA123JE-HF ADTA143ZE-HF ADTA114YE-HF All others	$V_{O(on)}$	I_O / I_I = -5mA / -0.25mA I_O / I_I = -10mA / -0.5mA		-0.1	-0.3	V
Input current	ADTA113ZE-HF ADTA114WE-HF ADTA114YE-HF ADTA123JE-HF ADTA123YE-HF ADTA143XE-HF ADTA143ZE-HF	I_I	V_I = -5V			-7.2 -0.88 -0.88 -3.6 -3.8 -1.8 -1.8	mA
Output current		$I_{O(off)}$	V_{CC} = -50V, V_I = 0V			-0.5	μA
DC current gain	ADTA113ZE-HF ADTA114WE-HF ADTA114YE-HF ADTA123JE-HF ADTA123YE-HF ADTA143XE-HF ADTA143ZE-HF	G_I	V_O = -5V, I_O = -5mA V_O = -5V, I_O = -10mA V_O = -5V, I_O = -5mA V_O = -5V, I_O = -10mA V_O = -5V, I_O = -10mA V_O = -5V, I_O = -10mA V_O = -5V, I_O = -10mA	33 24 68 80 33 30 80			
Input resistor	ADTA113ZE-HF ADTA114WE-HF ADTA114YE-HF ADTA123JE-HF ADTA123YE-HF ADTA143XE-HF ADTA143ZE-HF	$R_1(R_2)$		0.7 7 7 1.54 1.54 3.29 3.29	1 10 10 2.2 2.2 4.7 4.7	1.3 13 13 2.86 2.86 6.11 6.11	kΩ
Resistance ratio	ADTA113ZE-HF ADTA114WE-HF ADTA114YE-HF ADTA123JE-HF ADTA123YE-HF ADTA143XE-HF ADTA143ZE-HF	R_2/R_1		8 0.37 3.7 17 3.6 1.7 8	10 0.47 4.7 21 4.5 2.1 10	12 0.57 5.7 26 5.5 2.6 12	
Gain-bandwidth product		f_T	V_{CE} = -10V, I_E = 5mA, f = 100MHz		250		MHz

Typical Rating and Characteristic Curves (ADTAxxxxE-HF Series)

Fig.1 - Input Voltage vs. Output Current (ON Characteristics)

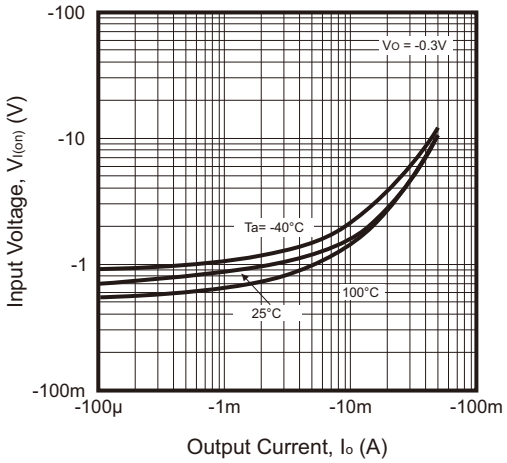


Fig.2 - Output Current vs. Input Voltage (OFF Characteristics)

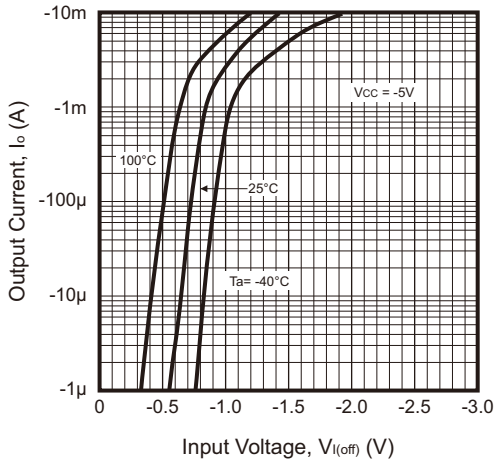


Fig.3 - DC Current Gain vs. Output Current

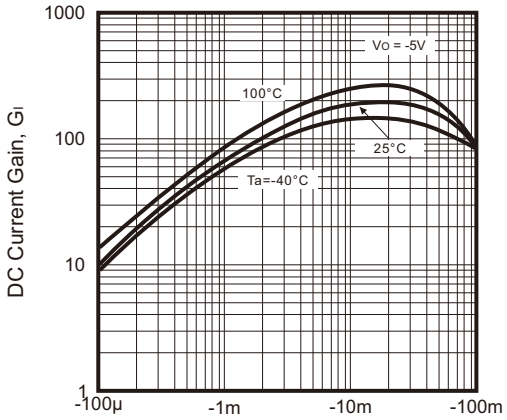
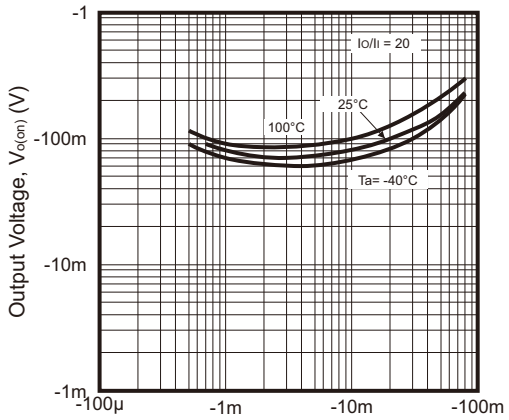
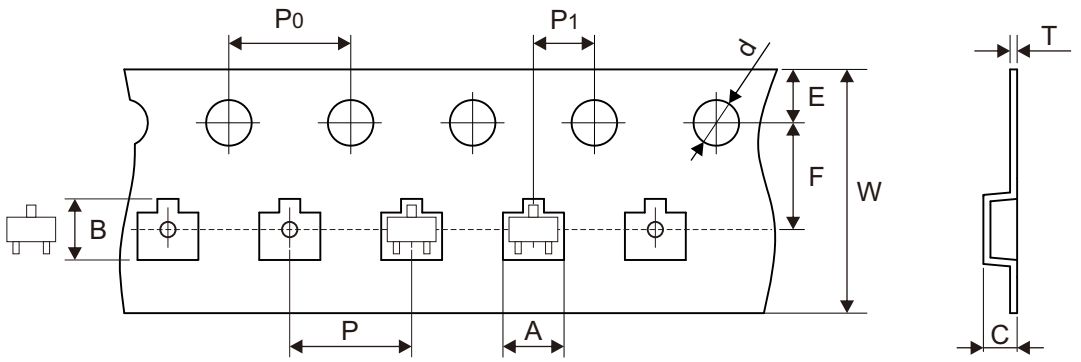
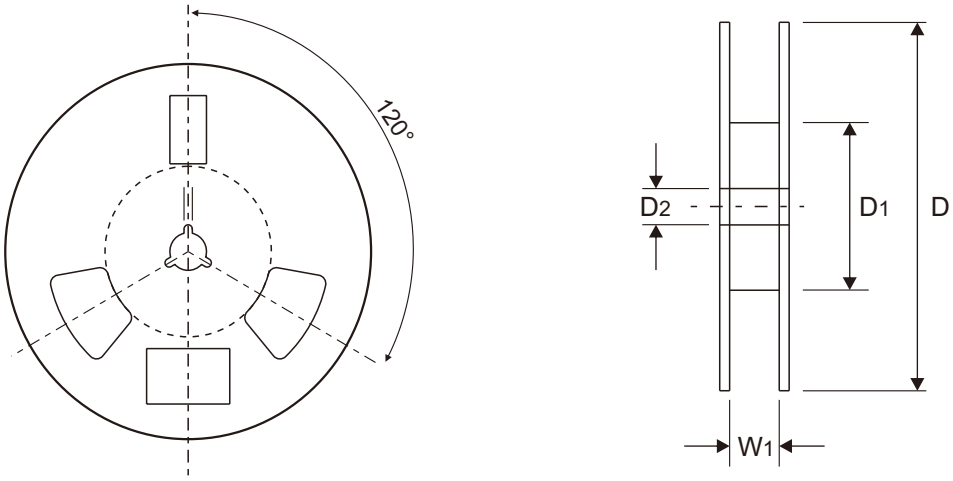


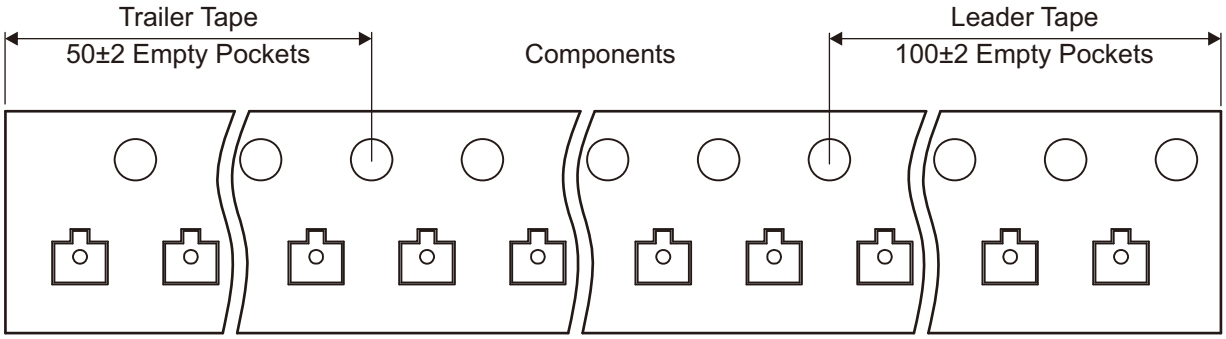
Fig.4 - Output Voltage vs. Output Current



Reel Taping Specification





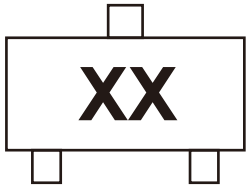


	SYMBOL	A	B	C	d	D	D1	D2
SOT-523	(mm)	1.85 ± 0.05	1.85 ± 0.05	0.875 ± 0.05	1.50 ± 0.10	178.00 ± 1.00	54.00 ± 0.50	13.00 ± 0.50
	(inch)	0.073 ± 0.002	0.073 ± 0.002	0.034 ± 0.002	0.059 ± 0.004	7.008 ± 0.039	2.126 ± 0.020	0.512 ± 0.020

	SYMBOL	E	F	P	P0	P1	T	W	W1
SOT-523	(mm)	1.75 ± 0.10	3.50 ± 0.05	4.00 ± 0.10	4.00 ± 0.10	2.00 ± 0.05	0.229 ± 0.02	8.00 + 0.30 − 0.10	9.50 ± 1.00
	(inch)	0.069 ± 0.004	0.138 ± 0.002	0.157 ± 0.004	0.157 ± 0.004	0.079 ± 0.002	0.009 ± 0.001	0.315 + 0.012 − 0.004	0.374 ± 0.039

Marking Code

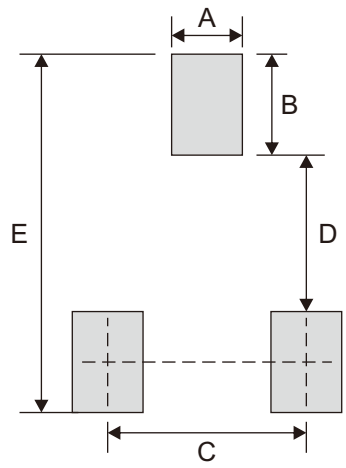
Part Number	Marking Code
ADTA113ZE-HF	E11
ADTA114WE-HF	74
ADTA114YE-HF	54
ADTA123JE-HF	E32
ADTA123YE-HF	52
ADTA143XE-HF	33
ADTA143ZE-HF	E13



xx/xxx = Product type marking code

Suggested P.C.B. PAD Layout

SIZE	SOT-523	
	(mm)	(inch)
A	0.356	0.014
B	0.508	0.020
C	1.00	0.039
D	0.787	0.031
E	1.803	0.071



Standard Packaging

Case Type	REEL PACK	
	REEL (pcs)	Reel Size (inch)
SOT-523	3,000	7