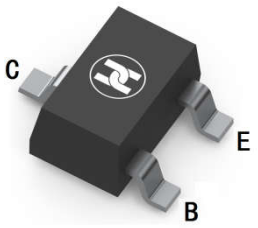
NPN SMALL SINGAL DIGITAL TRANSISTOR

FEATURES

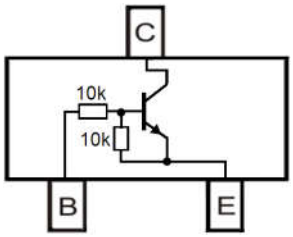
- Built-in bias resistors
- Simplified circuit design
- Reduction of component count
- Complement to PDTA114EU



SOT-323

MECHANICAL DATA

- Case: SOT-323 (SC-70)
- Case material: Molded Plastic. UL flammability
- Classification rating: 94V-0
- Terminals: Tin plated,solderable per MIL-STD-202, Method 208
- Weight: 0.008 grams (approximate)



MAXIMUM RATINGS (T_a = 25°C unless otherwise specified)

Parameter		Symbol	Value	Unit	Conditions
Collector-base voltage		V_{CBO}	50	V	Open emitter
Collector-emitter voltage		V_{CEO}	50	V	Open base
Emitter-base voltage		V_{EBO}	10	V	Open collector
Input voltage	Positive	V_I	+40	V	
	Negative		-10	V	
Output current (DC)		I_O	100	mA	
Peak collector current		I_{CM}	100	mA	
Total power dissipation		P_{tot}	200	mW	Standard mounting
Storage temperature		T_{stg}	-65 ~ +150	°C	
Junction temperature		T_j	150	°C	
Operating ambient temperature		T_a	-65 ~ +150	°C	
Thermal resistance from junction to ambient		$R_{th\ j\text{-}a}$	625	K/W	Standard mounting

ELECTRICAL CHARACTERISTICS (T_a = 25°C unless otherwise specified)

Parameter	Symbol	Min	Typ	Max	Unit	Conditions
Collector-base cut-off current	I_{CBO}			100	nA	V_{CB}=50V;I_E=0
Collector-emitter cut-off current	I_{CEO}			1	μA	V_{CE}=30V;I_B=0
				50	μA	V_{CE}=30V;I_B=0;Tj=150°C
Emitter-base cut-off current	I_{EBO}			400	μA	V_{EB}=5V;I_C=0
DC current gain	h_{FE}	30				V_{CE}=5V;I_C=5mA
Collector-emitter saturation voltage	V_{CEsat}			150	mV	I_C=10mA;I_B=0.5mA
Input-off voltage	$V_{i(off)}$		1.1	0.8	V	I_C=100mA;V_{CE}=5V
Input-on voltage	$V_{i(on)}$	2.5	1.8		V	I_C=10mA;V_{CE}=0.3V
Input resistor	R1	7	10	13	kΩ	
Resistor ratio	R2/R1	0.8	1	1.2		
Collector capacitance	C_c			2.5	pF	I_E=i_e=0;V_{CB}=10V;f=1MHz

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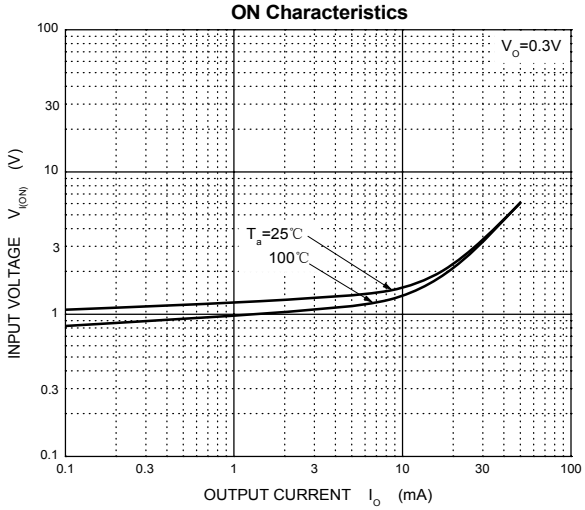
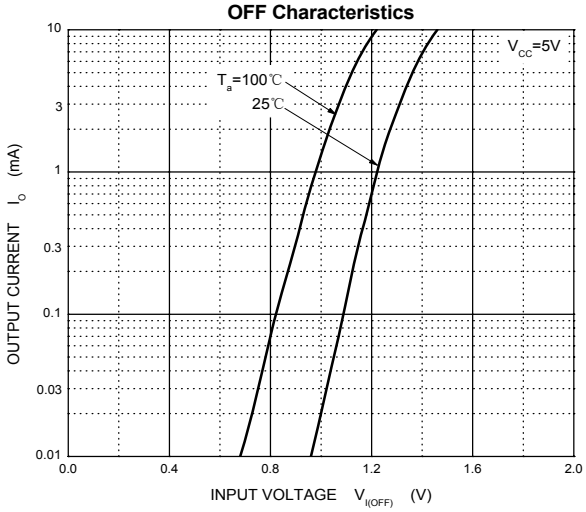
TYPICAL CHARACTERISTICS

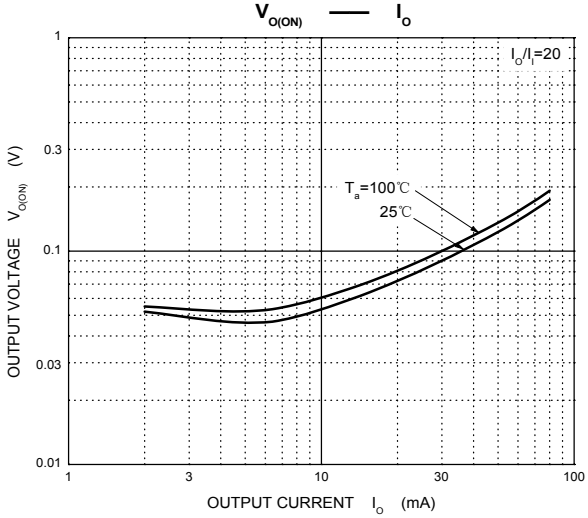
ON Characteristics



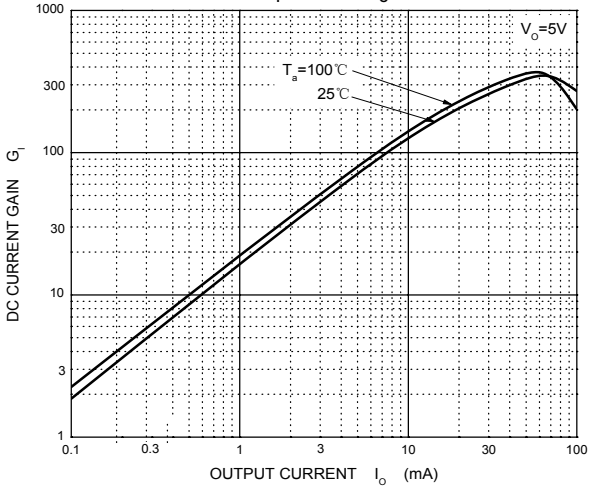
OFF Characteristics



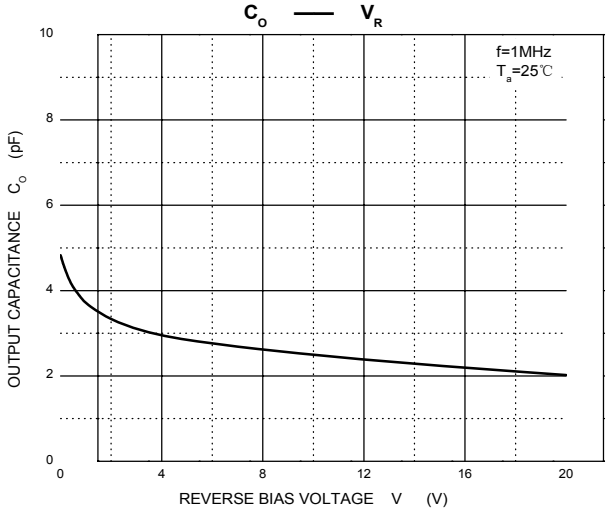
$V_{O(ON)}$ — I_O



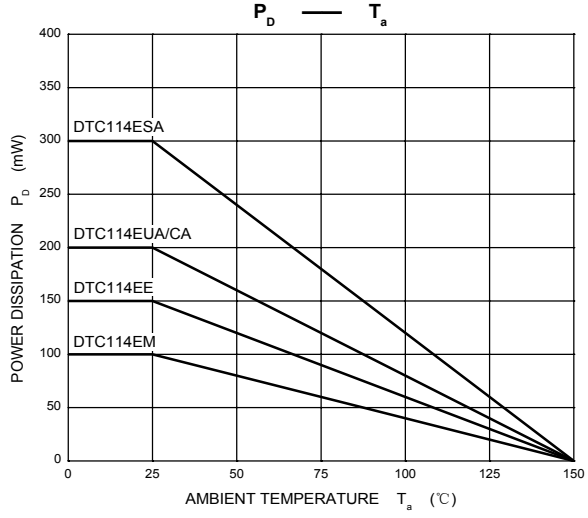
G_I — I_O



C_O — V_R

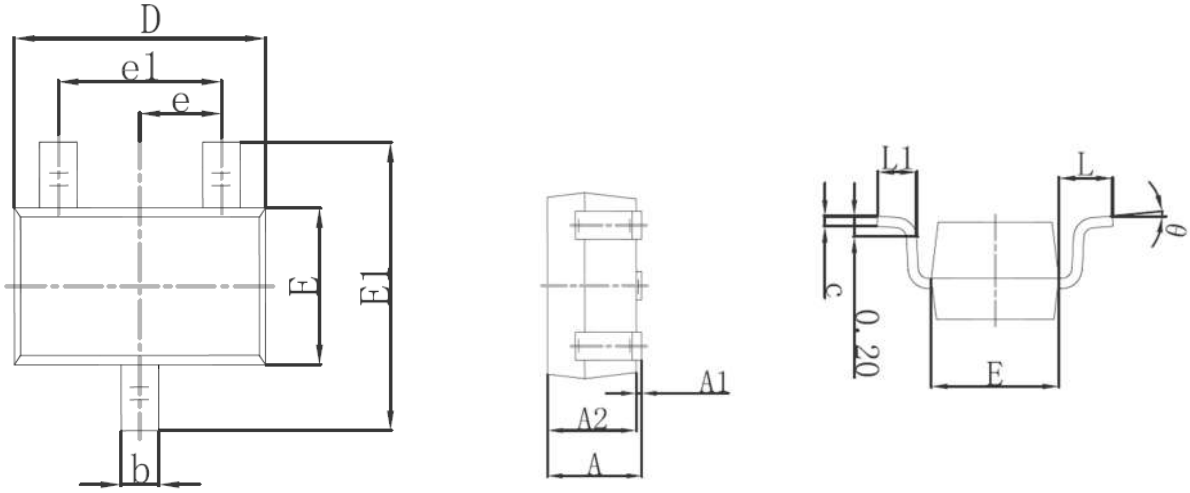


P_D — T_a



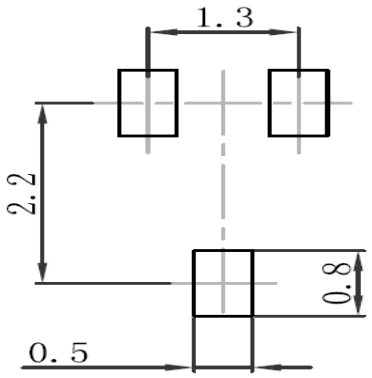
NPN SMALL SINGAL DIGITAL TRANSISTOR

SOT-323 PACKAGE OUTLINE DIMENSIONS



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	0.900	1.100	0.035	0.043
A1	0.000	0.100	0.000	0.004
A2	0.900	1.000	0.035	0.039
b	0.200	0.400	0.008	0.016
c	0.080	0.150	0.003	0.006
D	2.000	2.200	0.079	0.087
E	1.150	1.350	0.045	0.053
E1	2.150	2.450	0.085	0.096
e	0.650TYP		0.026TYP	
e1	1.200	1.400	0.047	0.055
L	0.525REF		0.021REF	
L1	0.260	0.460	0.010	0.018
θ	0°	8°	0°	8°

SOT-323 SUGGESTED PAD LAYOUT



Note:

1.Controlling dimension: in millimeters

2.General tolerance: ±0.05mm

3.The pad layout is for reference purposes only

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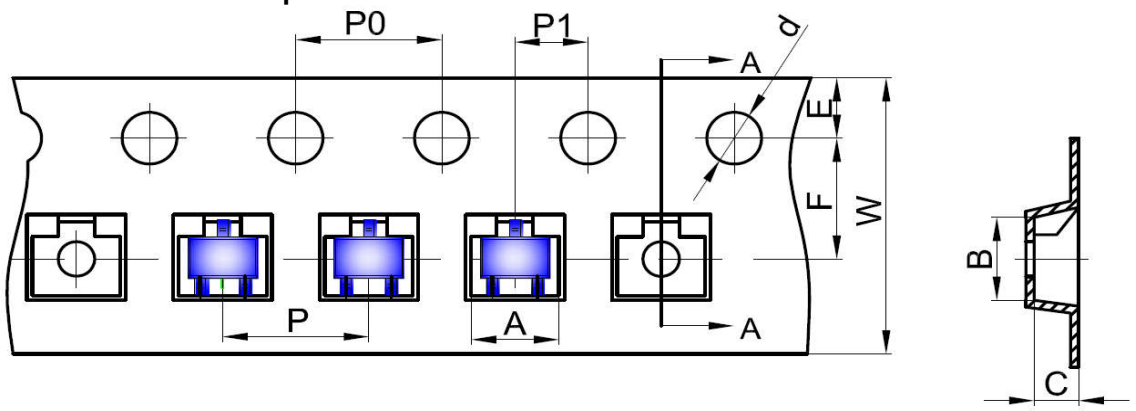
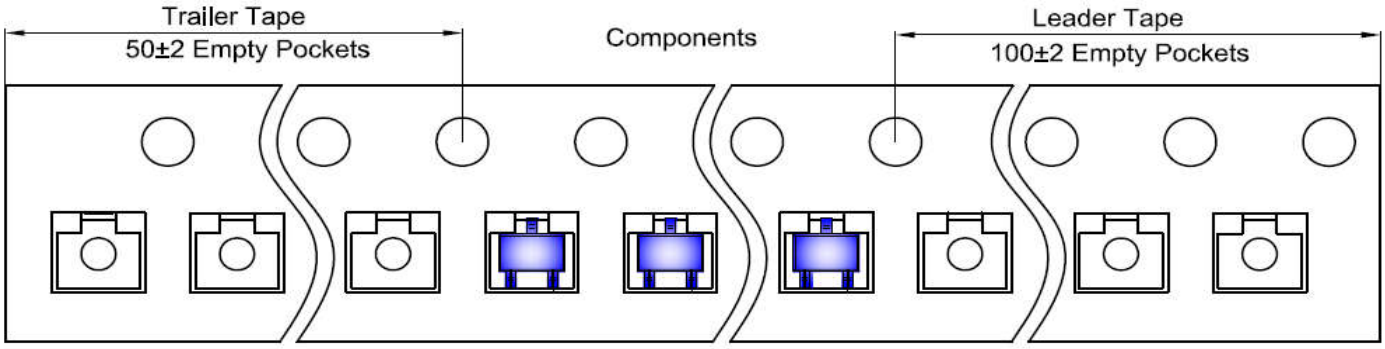
SOT-323 TAPE AND REEL

SOT-323 Embossed Carrier Tape

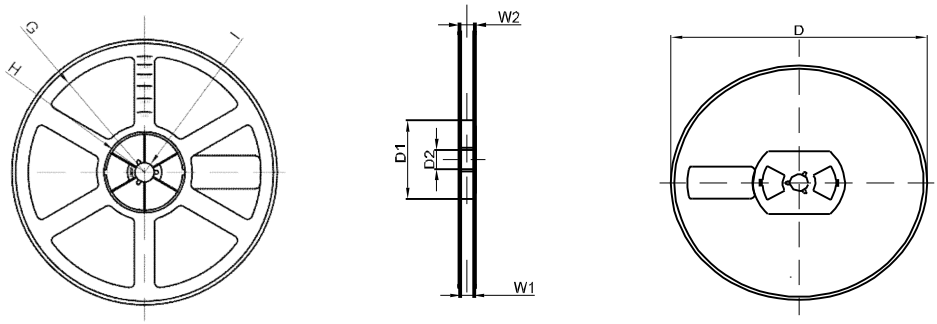


	DIMENSIONS ARE IN MILLIMETER									
TYPE	A	B	C	d	E	F	P0	P	P1	W
SOT-323	2.25	2.55	1.19	Ø1.50	1.75	3.50	4.00	4.00	2.00	8.00
TOLERANCE	±0.1	±0.1	±0.1	±0.1	±0.1	±0.1	±0.1	±0.1	±0.1	±0.1

SOT-323 Tape Leader and Trailer



SOT-323 Reel



	DIMENSIONS ARE IN MILLIMETER							
REEL OPTION	D	D1	D2	G	H	I	W1	W2
7" DIA	Ø178	54.40	13.00	R78	R25.60	R6.50	9.50	12.30
TOLERANCE	±2	±1	±1	±1	±1	±1	±1	±1