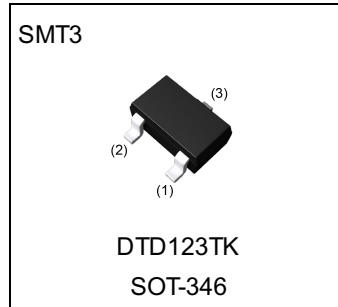


Parameter	Value
V_{CEO}	40V
I_C	500mA
R_1	2.2k Ω

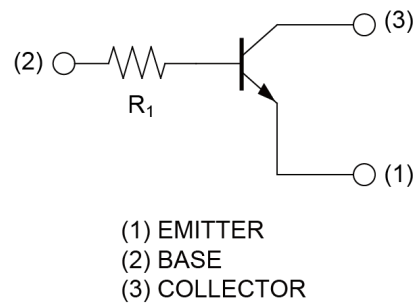
●Outline



●Features

- 1) Built-in bias resistors enable the configuration of an inverter circuit without connecting external input resistors (see equivalent circuit)
- 2) The bias resistors consist of thin-film resistors with complete isolation to allow negative biasing of the input. They also have the advantage of almost completely eliminating parasitic effects.
- 3) Only the on/off conditions need to be set for operation, making the device design easy.

●Inner circuit



●Application

INVERTER, INTERFACE, DRIVER

●Packaging specifications

Part No.	Package	Package size	Taping code	Reel size (mm)	Tape width (mm)	Basic ordering unit.(pcs)	Marking
DTD123TK	SMT3	2928	T146	180	8	3000	F02

● **Absolute maximum ratings** ($T_a = 25^\circ\text{C}$)

Parameter	Symbol	Values	Unit
Collector-base voltage	V_{CBO}	50	V
Collector-emitter voltage	V_{CEO}	40	V
Emitter-base voltage	V_{EBO}	5	V
Collector current	I_{C}^{*1}	500	mA
Power dissipation	P_{D}^{*2}	200	mW/Total
Junction temperature	T_{j}	150	$^\circ\text{C}$
Range of storage temperature	T_{stg}	-55 to +150	$^\circ\text{C}$

● **Electrical characteristics** ($T_a = 25^\circ\text{C}$)

Parameter	Symbol	Conditions	Values			Unit
			Min.	Typ.	Max.	
Collector-base breakdown voltage	BV_{CBO}	$I_{\text{C}} = 50\mu\text{A}$	50	-	-	V
Collector-emitter breakdown voltage	BV_{CEO}	$I_{\text{C}} = 1\text{mA}$	40	-	-	V
Emitter-base breakdown voltage	BV_{EBO}	$I_{\text{E}} = 50\mu\text{A}$	5	-	-	V
Collector cut-off current	I_{CBO}	$V_{\text{CB}} = 50\text{V}$	-	-	500	nA
Emitter cut-off current	I_{EBO}	$V_{\text{EB}} = 4\text{V}$	-	-	500	nA
Collector-emitter saturation voltage	$V_{\text{CE(sat)}}$	$I_{\text{C}} / I_{\text{B}} = 50\text{mA} / 2.5\text{mA}$	-	-	300	mV
DC current gain	h_{FE}	$V_{\text{CE}} = 5\text{V}, I_{\text{C}} = 50\text{mA}$	100	250	600	-
Input resistance	R_{i}	-	1.54	2.2	2.86	k Ω
Transition frequency	f_{T}^{*1}	$V_{\text{CE}} = 10\text{V}, I_{\text{E}} = -50\text{mA}, f = 100\text{MHz}$	-	200	-	MHz

*1 Characteristics of built-in transistor.

*2 Each terminal mounted on a reference land.

● Electrical characteristic curves ($T_a = 25^\circ\text{C}$)

Fig.1 Grounded Emitter Propagation Characteristics

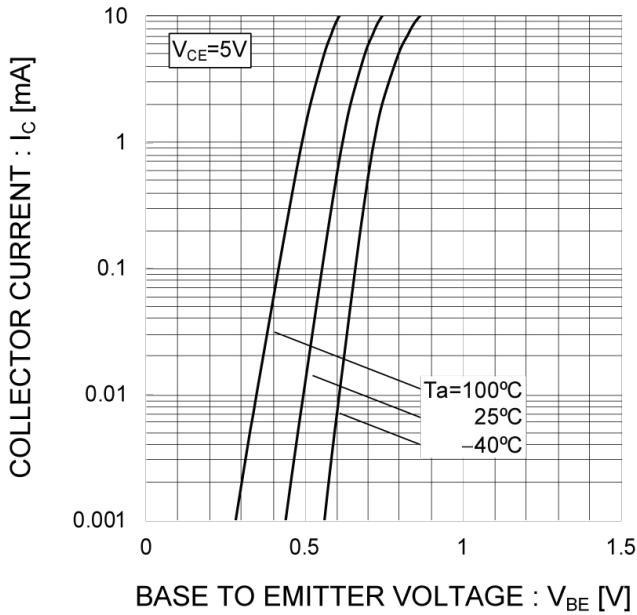


Fig.2 Grounded Emitter Output Characteristics

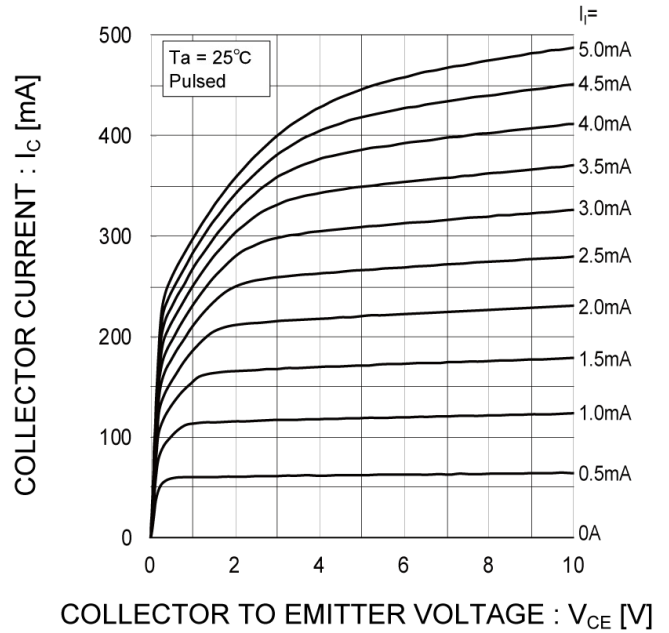


Fig.3 DC Current Gain vs. Collector Current

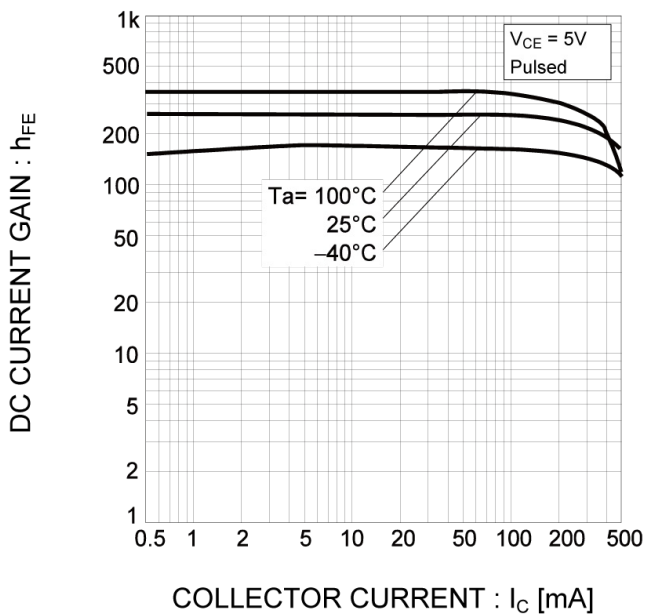
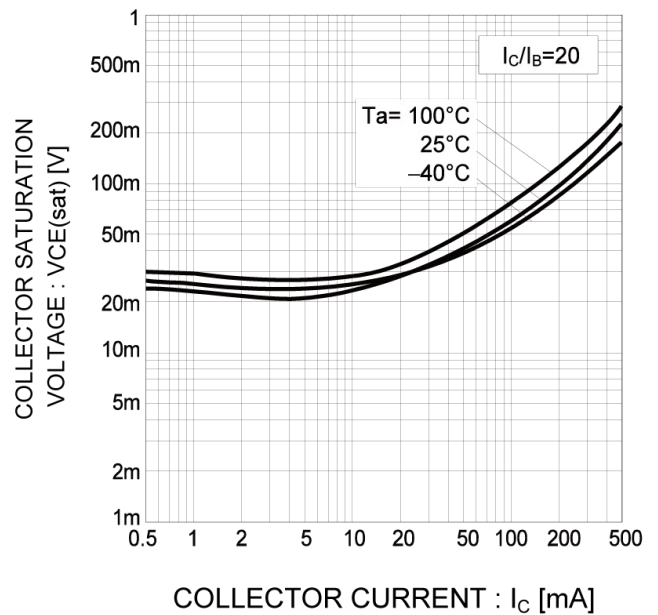
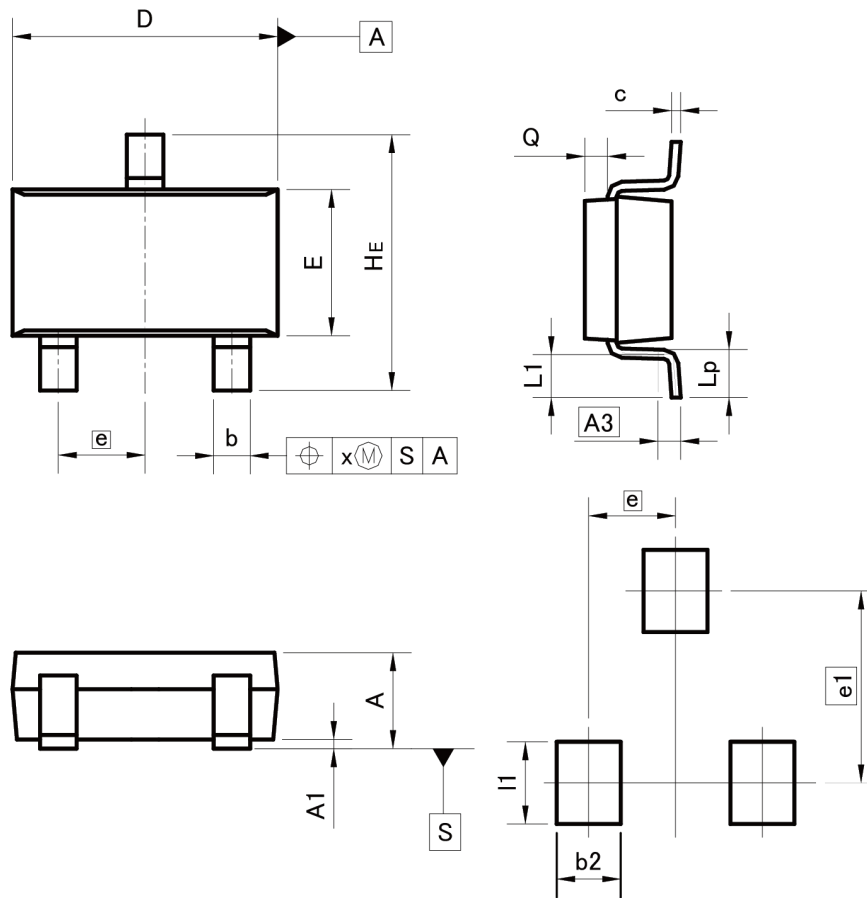


Fig.4 Collector-Emitter Saturation Voltage vs. Collector Current



●Dimensions

SMT3



Pattern of terminal position areas
[Not a recommended pattern of soldering pads]

DIM	MILIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	1.00	1.30	0.039	0.051
A1	0.00	0.10	0.000	0.004
A3	0.25		0.010	
b	0.35	0.50	0.014	0.020
c	0.09	0.25	0.004	0.010
D	2.80	3.00	0.110	0.118
E	1.50	1.80	0.059	0.071
e	0.95		0.037	
HE	2.60	3.00	0.102	0.118
L1	0.30	0.60	0.012	0.024
Lp	0.40	0.70	0.016	0.028
Q	0.20	0.30	0.008	0.012
x	-	0.10	-	0.004
y	-	0.10	-	0.004

DIM	MILIMETERS		INCHES	
	MIN	MAX	MIN	MAX
b2	-	0.60	-	0.024
e1	2.10		0.083	
l1	-	0.90	-	0.035

Dimension in mm/inches

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