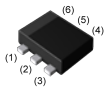
EMB53

Complex Digital Transistors (Bias Resistor Built-in Transistors) Datasheet

Parameter	DTr1 and DTr2
V_{CEO}	-50V
I_C	-100mA
R_1	4.7kΩ

●Outline

EMT6



EMB53

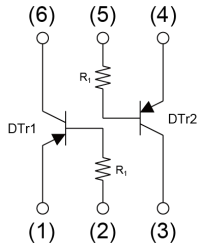
(SC-107C)

●Features

1) Two DTA043T chips in a EMT6 package.
2) Transister elements are independent, eliminating interface.
3) Mounting cost and area can be cut in half.
4) Lead Free/RoHS Compliant.

●Inner circuit

(1) DTr1 Emitter
(2) DTr1 Base
(3) DTr2 Collector
(4) DTr2 Emitter
(5) DTr2 Base
(6) DTr1 Collector



●Application

Switching circuit, Inverter circuit, Interface circuit,
Driver circuit

●Packaging specifications

Part No.	Package	Package size	Taping code	Reel size (mm)	Tape width (mm)	Basic ordering unit.(pcs)	Marking
EMB53	EMT6	1616	T2R	180	8	8000	B53

●Absolute maximum ratings (T_a = 25°C)

<For DTr1 and DTr2 in common>

Parameter	Symbol	Values	Unit
Collector-base voltage	V_{CBO}	-50	V
Collector-emitter voltage	V_{CEO}	-50	V
Emitter-base voltage	V_{EBO}	-5	V
Collector current	I_C	-100	mA
Power dissipation	P_D*1 *2	150	mW
Junction temperature	T_j	150	℃
Range of storage temperature	T_{stg}	-55 to +150	℃

●Electrical characteristics (T_a = 25°C)

<For DTr1 and DTr2 in common>

Parameter	Symbol	Conditions	Values			Unit
			Min.	Typ.	Max.	
Collector-base breakdown voltage	BV_{CBO}	I_C = -50μA	-50	-	-	V
Collector-emitter breakdown voltage	BV_{CEO}	I_C = -1mA	-50	-	-	V
Emitter-base breakdown voltage	BV_{EBO}	I_E = -50μA	-5	-	-	V
Collector cut-off current	I_{CBO}	V_{CB} = -50V	-	-	-0.5	μA
Emitter cut-off current	I_{EBO}	V_{EB} = -4V	-	-	-0.5	μA
Collector-emitter saturation voltage	$V_{CE(sat)}$	I_C = -5mA, I_B = -0.5mA	-	-0.07	-0.15	V
DC current gain	h_{FE}	V_{CE} = -10V, I_C = -5mA	100	-	600	-
Input resistance	R_1	-	3.29	4.7	6.11	kΩ
Transition frequency	f_T*3	V_{CE} = -10V, I_E = -10V, f = 100MHz	-	250	-	MHz

*1 terminal mounted on a reference footprint.

*2 120mW per element must not be exceeded.

*3 Characteristics of built-in transistor.

●Electrical characteristic curves(T_a=25°C)

<For Tr1 and Tr2 in common>

Fig.1 Grounded emitter propagation characteristics

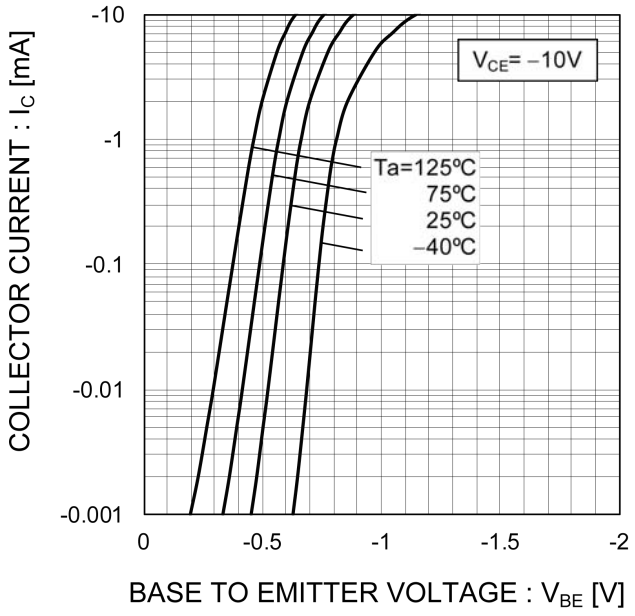


Fig.2 Grounded emitter output characteristics

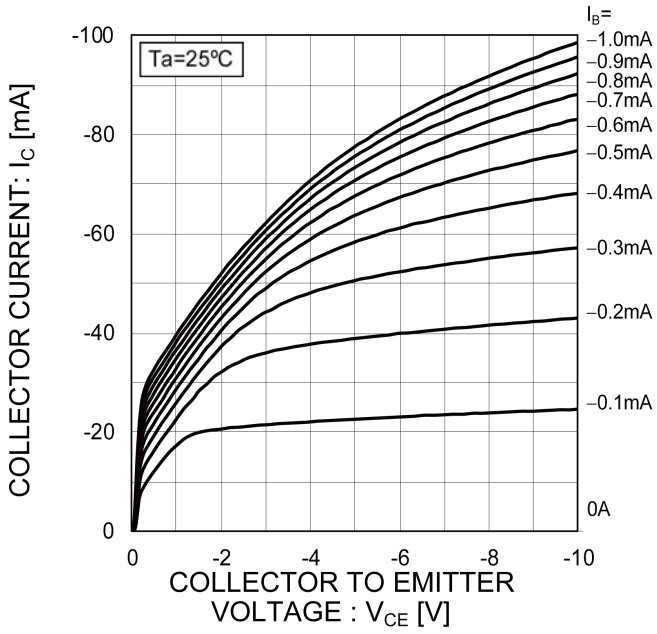


Fig.3 DC Current gain vs. Collector Current

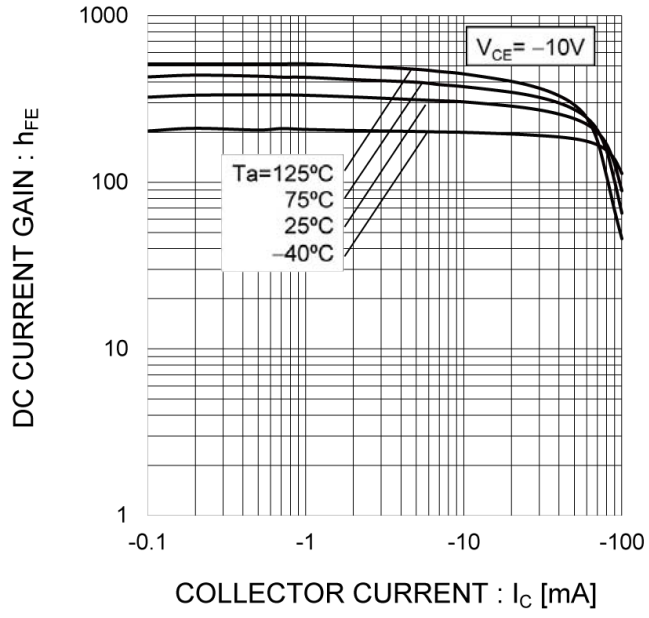
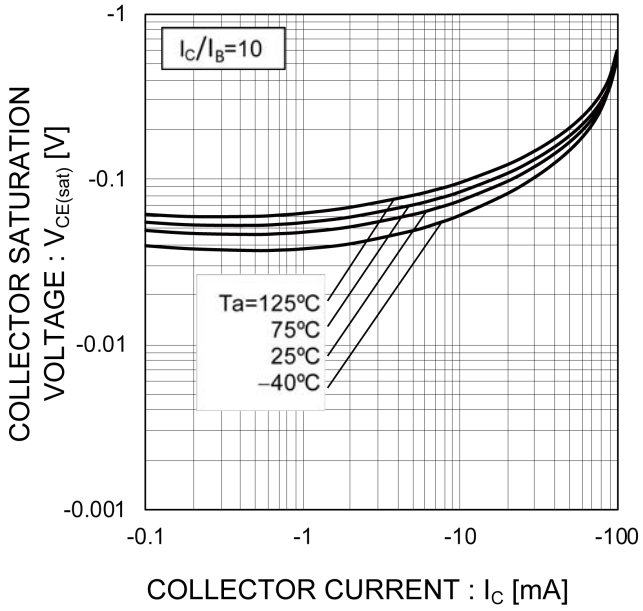
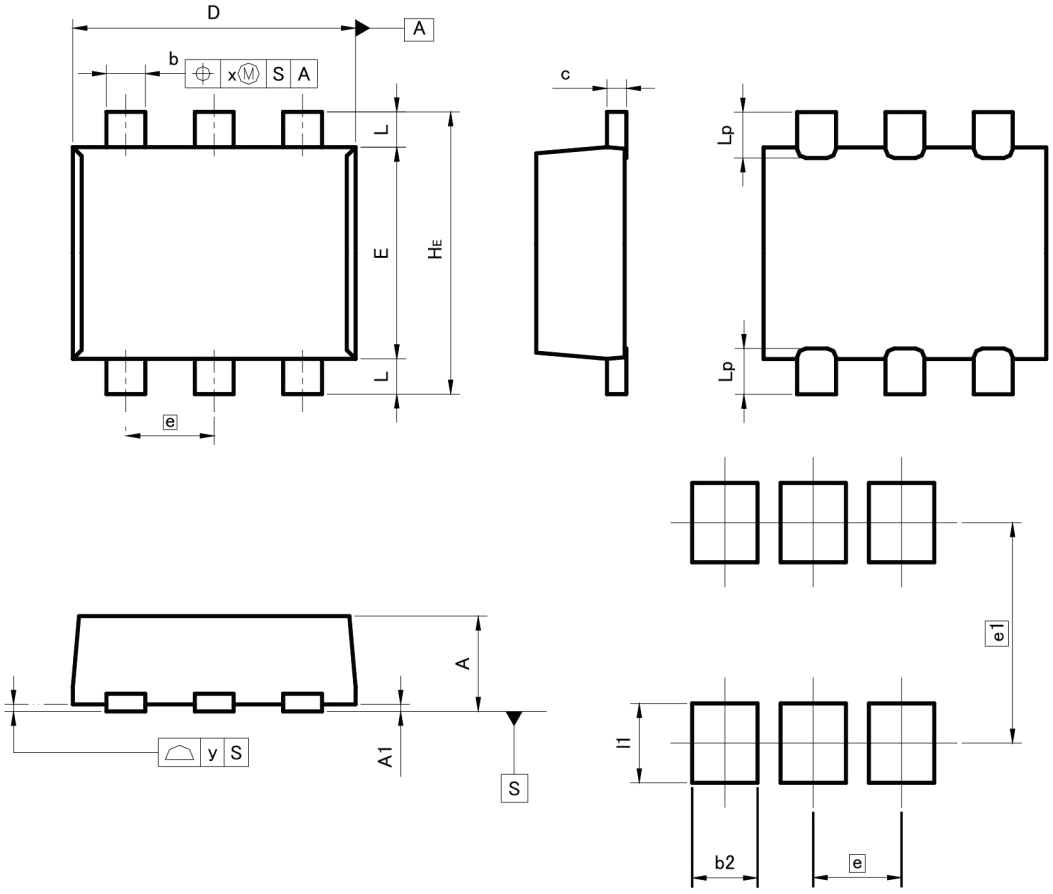


Fig.4 Collector-emitter saturation voltage vs. Collector Current



●Dimensions

EMT6



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

DIM	MILIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	0.45	0.55	0.018	0.022
A1	0.00	0.10	0.000	0.004
b	0.17	0.27	0.007	0.011
c	0.08	0.18	0.003	0.007
D	1.50	1.70	0.059	0.067
E	1.10	1.30	0.043	0.051
e	0.50		0.020	
HE	1.50	1.70	0.059	0.067
L	0.10	0.30	0.004	0.012
Lp	–	0.35	–	0.014
x	–	0.10	–	0.004
y	–	0.10	–	0.004

DIM	MILIMETERS		INCHES	
	MIN	MAX	MIN	MAX
b2	–	0.37	–	0.015
e1	1.25		0.049	
l1	–	0.45	–	0.018

Dimension in mm/inches

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