

Parameter	Value
V_{CEO}	50V
I_C	100mA
R_1	10k Ω

●Features

- 1) Built-In Biasing Resistors
- 2) Built-in bias resistors enable the configuration of an inverter circuit without connecting external input resistors (see inner circuit).
- 3) The bias resistors consist of thin-film resistors with complete isolation to allow negative biasing of the input. They also have the advantage of completely eliminating parasitic effects.
- 4) Only the on/off conditions need to be set for operation, making the circuit design easy.
- 5) Complementary PNP Types :DTA014T series
- 6) Lead Free/RoHS Compliant.

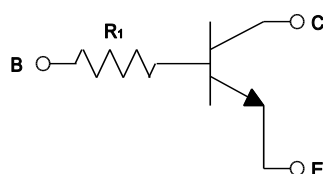
●Application

Switching circuit, Inverter circuit, Interface circuit, Driver circuit

●Outline

VMT3 DTC014TM (SC-105AA)	EMT3F DTC014TEB (SC-89)
UMT3F DTC014TUB (SC-85)	

●Inner circuit



●Packaging specifications

Part No.	Package	Package size (mm)	Taping code	Reel size (mm)	Tape width (mm)	Basic ordering unit (pcs)	Marking
DTC014TM	VMT3	1212	T2L	180	8	8,000	10
DTC014TEB	EMT3F	1616	TL	180	8	3,000	10
DTC014TUB	UMT3F	2021	TL	180	8	3,000	10

●Absolute maximum ratings (Ta = 25 °C)

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
Collector Power dissipation	DTC014TM DTC014TEB	P_C^{*2}	150	mW
	DTC014TUB		200	mW
Junction temperature		T_j	150	°C
Range of storage temperature		T_{stg}	-55 to +150	°C

●Electrical characteristics (Ta = 25 °C)

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
Collector-base breakdown voltage	BV_{CBO}	$I_C = 50\mu A$	50	-	-	V
Collector-emitter breakdown voltage	BV_{CEO}	$I_C = 1mA$	50	-	-	V
Emitter-base breakdown voltage	BV_{EBO}	$I_E = 50\mu A$	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	$V_{CE(sat)}$	$I_C / I_B = 5mA / 0.5mA$	-	0.05	0.15	V
DC current gain	h_{FE}	$V_{CE} = 10V, I_C = 5mA$	100	-	600	-
Input resistance	R_1	-	7	10	13	k Ω
Transition frequency	f_T^{*1}	$V_{CE} = 10V, I_E = -5mA,$ $f = 100MHz$	-	250	-	MHz

*1 Characteristics of built-in transistor

*2 Each terminal mounted on a reference footprint

●Electrical characteristic curves(Ta = 25 °C)

Fig.1 Grounded emitter propagation characteristics

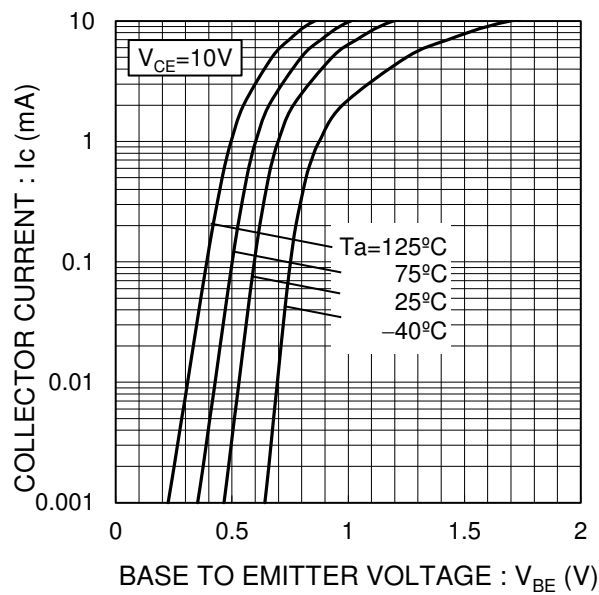


Fig.2 Grounded emitter output characteristics

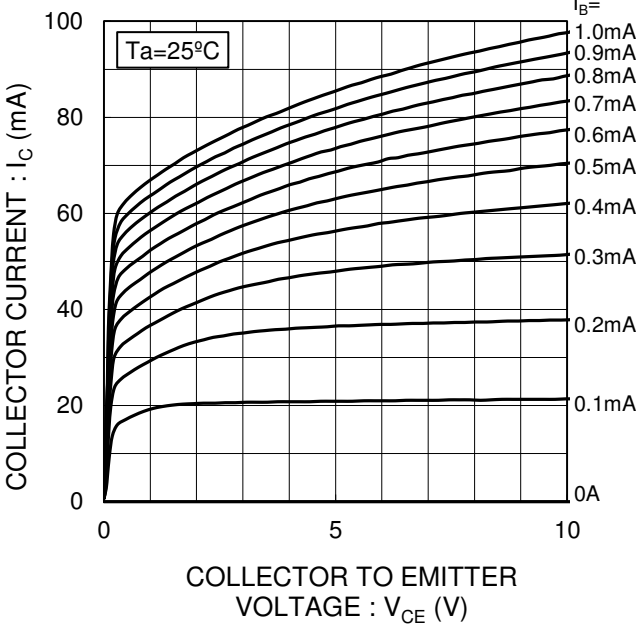


Fig.3 DC Current gain vs. Collector Current

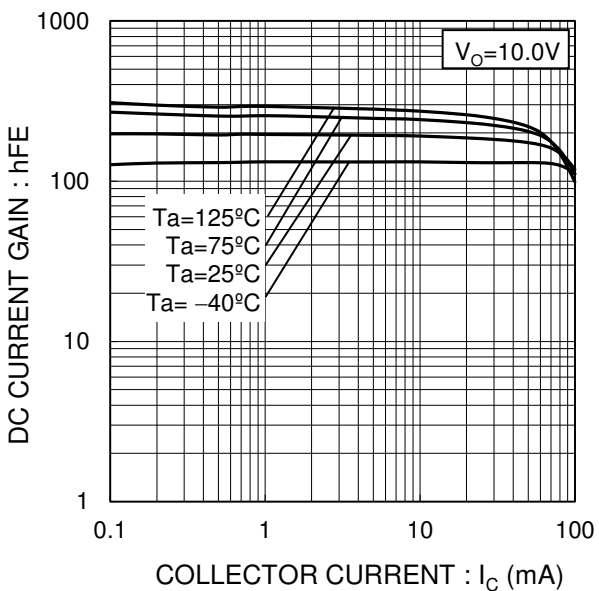
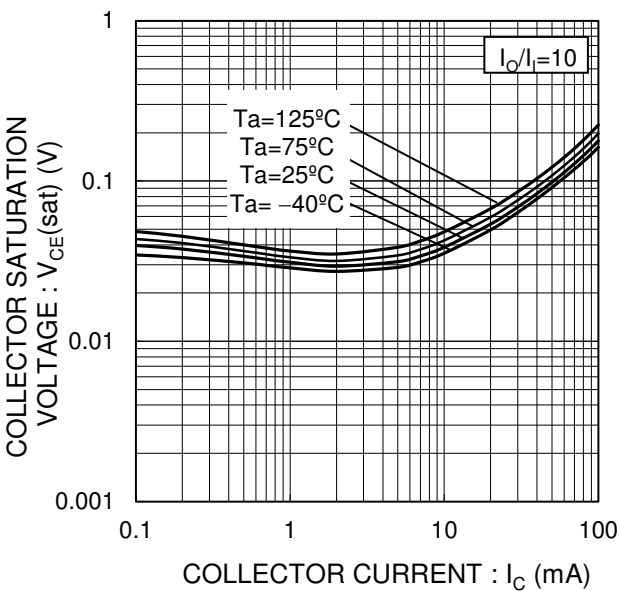
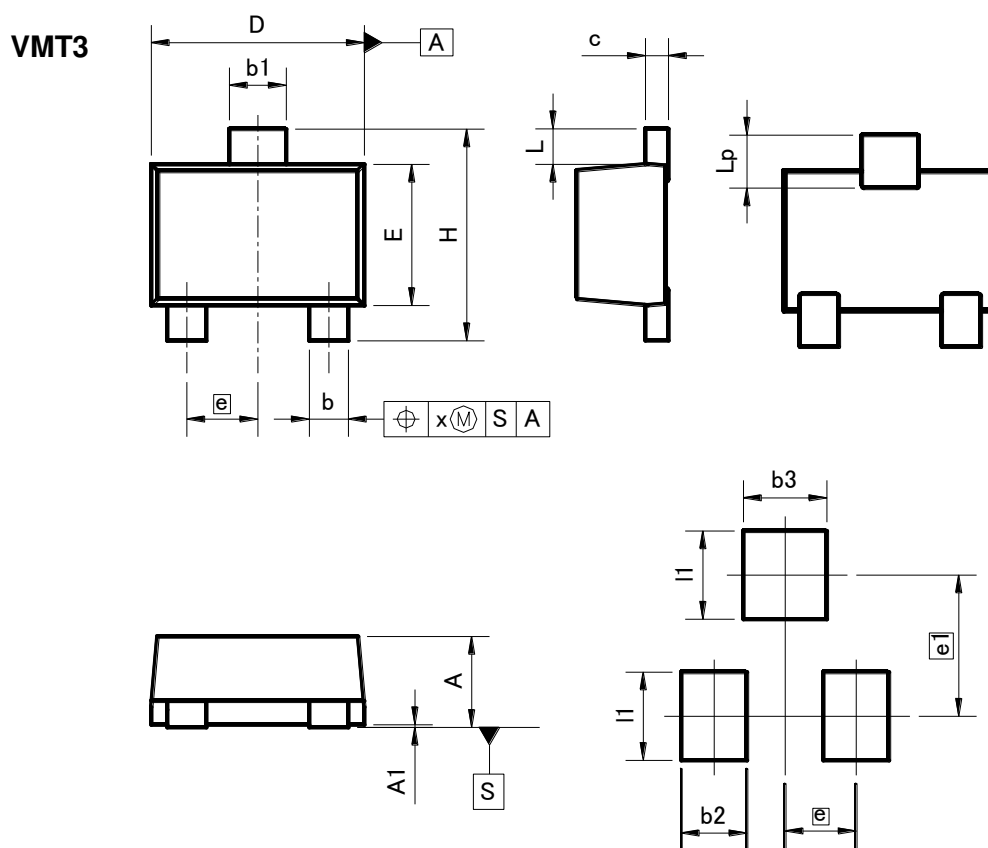


Fig.4 Collector-emitter saturation voltage vs. Collector Current



●Dimensions (Unit : mm)



Pattern of terminal position areas

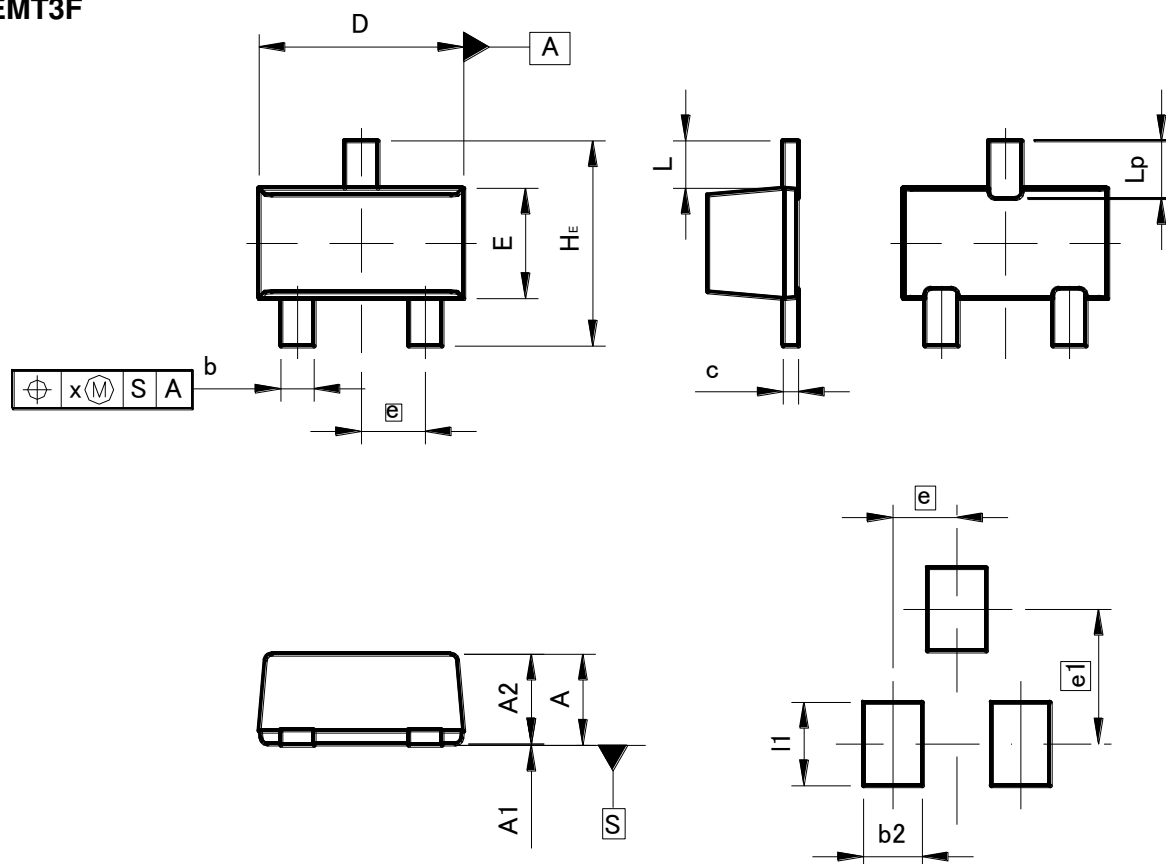
DIM	MILIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	0.45	0.55	0.018	0.022
A1	0.00	0.10	0	0.004
b	0.17	0.27	0.007	0.011
b1	0.27	0.37	0.011	0.015
c	0.08	0.18	0.003	0.007
D	1.10	1.30	0.043	0.051
E	0.70	0.90	0.028	0.035
e	0.40		0.02	
HE	1.10	1.30	0.043	0.051
L	0.10	0.30	0.004	—
Lp	0.20	0.40	0.008	—
x	—	0.10	—	0.004

DIM	MILIMETERS		INCHES	
	MIN	MAX	MIN	MAX
e1	0.80		0.03	
b2	—	0.37	—	0.015
b3	—	0.47	—	0.019
l1	—	0.50	—	0.02

Dimension in mm/inches

●Dimensions (Unit : mm)

EMT3F

Pattern of terminal position areas

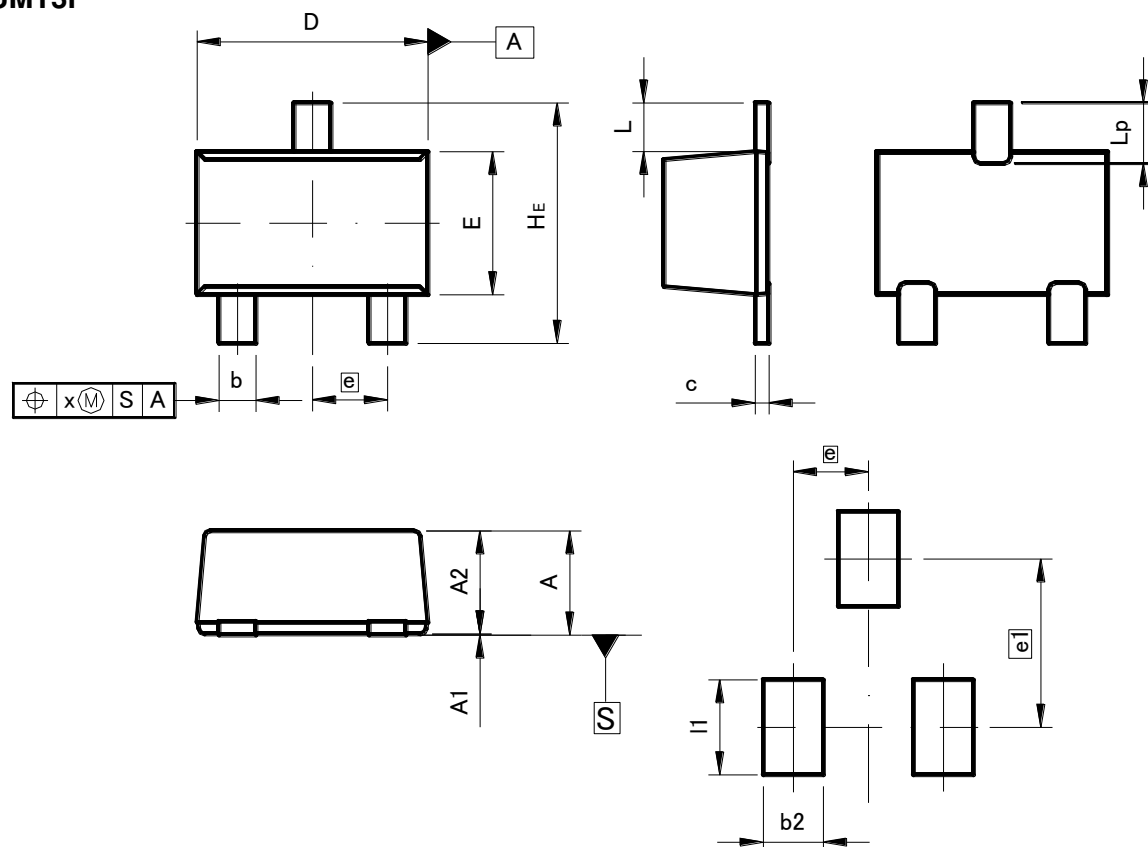
DIM	MILIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	0.65	0.85		
A1	0.00	0.10	0	0.004
A2	0.60	0.80	0.024	0.031
b	0.21	0.36	0.008	0.014
c	0.08	0.18	0.003	0.007
D	1.50	1.70	0.059	0.067
E	0.76	0.96	0.03	0.038
e	0.50		0.02	
HE	1.50	1.70	0.059	0.067
L	0.37		0.015	
Lp	0.35	0.55	0.014	0.022
x	—	0.10	—	0.004

DIM	MILIMETERS		INCHES	
	MIN	MAX	MIN	MAX
e1	—	1.05	—	0.041
b2	—	0.46	—	0.018
I1	—	0.65	—	0.026

Dimension in mm/inches

●Dimensions (Unit : mm)

UMT3F



Pattern of terminal position areas

DIM	MILIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	0.85	1.05	0.033	0.041
A1	0.00	0.10	0	0.004
A2	0.80	1.00	0.031	0.039
b	0.27	0.42	0.011	0.017
c	0.08	0.18	0.003	0.007
D	1.90	2.10	0.075	0.083
E	1.15	1.35	0.045	0.053
e	0.65		0.03	
HE	2.00	2.20	0.079	0.087
L	0.425		0.02	
Lp	0.43	0.63	0.017	0.025
x	—	0.10	—	0.004

DIM	MILIMETERS		INCHES	
	MIN	MAX	MIN	MAX
e1	1.47		0.058	
b2	—	0.52	—	0.02
l1	—	0.83	—	0.033

Dimension in mm/inches

Notes

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