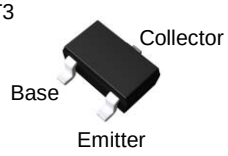
DTD114GK

NPN 500mA 50V Digital Transistors (Bias Resistor Built-in Transistors) Datasheet

Parameter	Value
V_{CEO}	50V
I_C	500mA
R	10kΩ

●Outline

SMT3

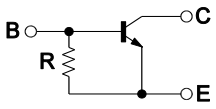


DTD114GK
SOT-346 (SC-59)

●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) Complementary PNP Types :DTB114GK
5) Lead Free/RoHS Compliant.

●Inner circuit



●Application

Switching circuit, Inverter circuit, Interface circuit, Driver circuit

●Packaging specifications

Part No.	Package	Package size (mm)	Taping code	Reel size (mm)	Tape width (mm)	Basic ordering unit (pcs)	Marking
DTD114GK	SMT3	2928	T146	180	8	3,000	L24

© 2012 ROHM Co., Ltd. All rights reserved.

Downloaded from Arrow.com.

●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	500	mA
Power dissipation	P_d *2	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= 50μA	50	-	-	V
Collector-emitter breakdown voltage	BV_{CEO}	I_C= 1mA	50	-	-	V
Emitter-base breakdown voltage	BV_{EBO}	I_E= 720μA	5	-	-	V
Collector cut-off current	I_{CBO}	V_{CB} = 50V	-	-	0.5	μA
Emitter cut-off current	I_{EBO}	V_{EB} = 4V	300	-	580	μA
Collector-emitter saturation voltage	$V_{CE(sat)}$	I_C / I_B= 50mA / 2.5mA	-	-	0.3	V
DC current gain	h_{FE}	V_{CE}= 5V , I_C= 50mA	56	-	-	-
Emitter-base resistance	R	-	7	10	13	kΩ
Transition frequency	f_T *1	V_{CE} = 10V, I_E = −5mA, f = 100MHz	-	200	-	MHz

*1 Characteristics of built-in transistor

*2 Each terminal mounted on a reference footprint

© 2012 ROHM Co., Ltd. All rights reserved.

Downloaded from Arrow.com.

●**Electrical characteristic curves**(Ta = 25°C)

Fig.1 Grounded emitter propagation characteristics

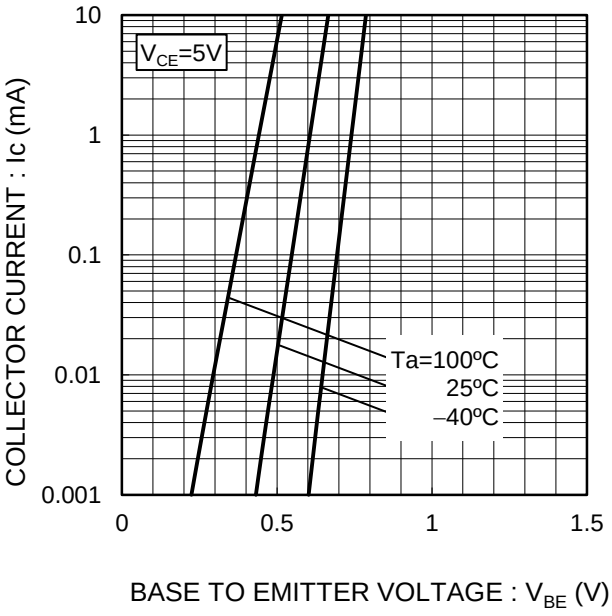


Fig.2 Grounded emitter output characteristics

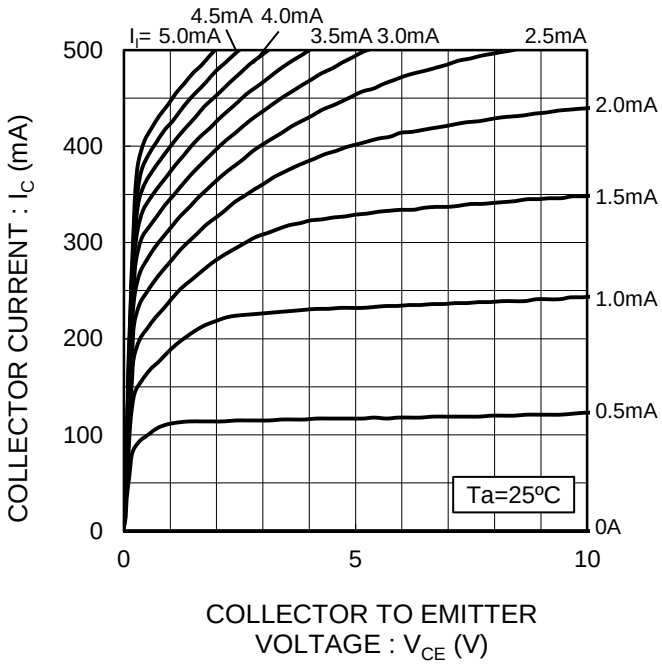


Fig.3 DC Current gain vs. Collector Current

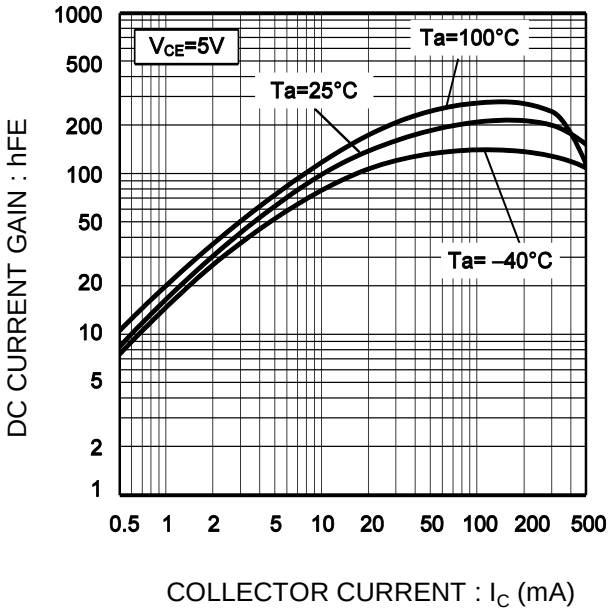
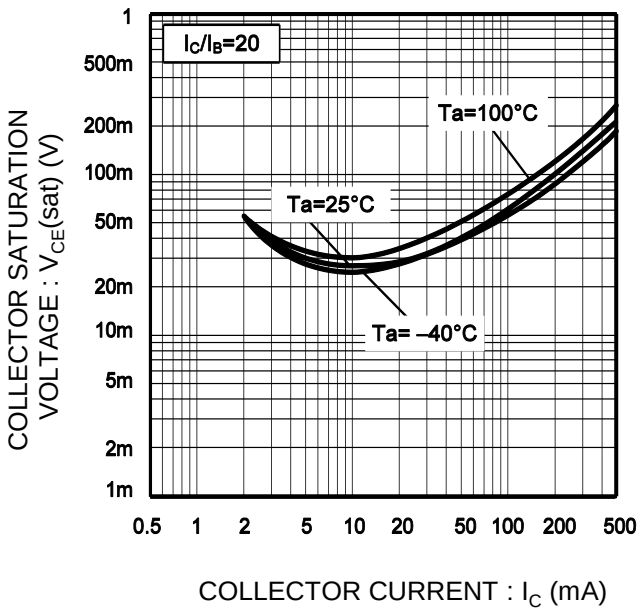


Fig.4 Collector-emitter saturation voltage vs. Collector Current

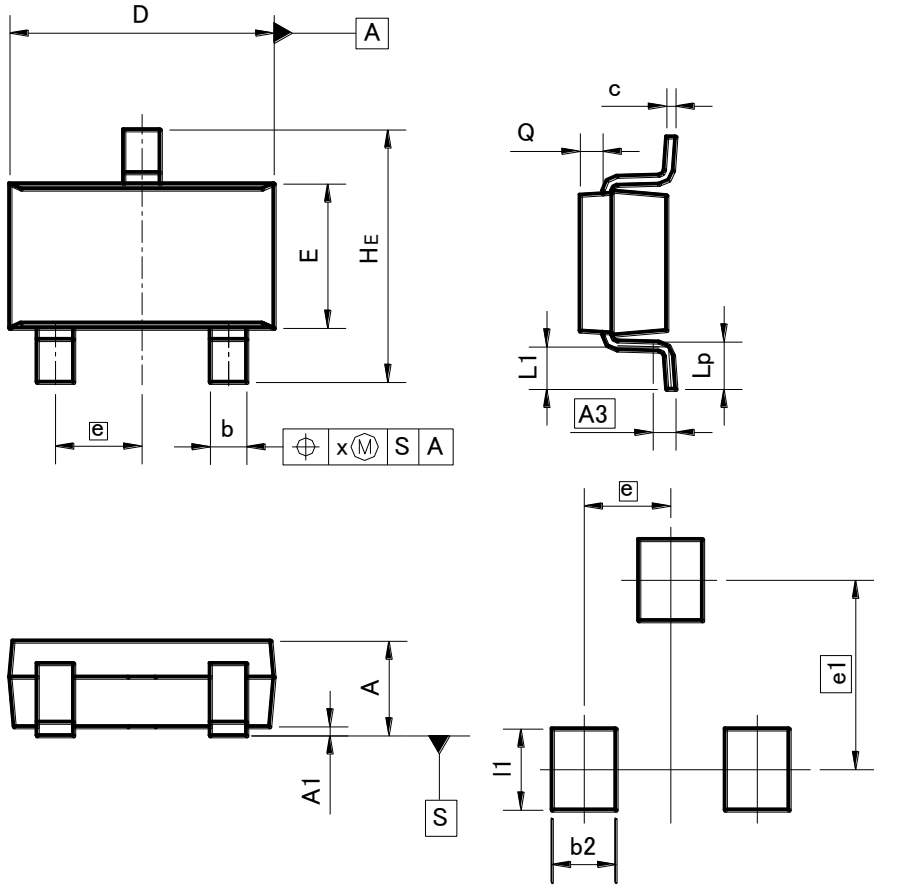


© 2012 ROHM Co., Ltd. All rights reserved.

Downloaded from Arrow.com.

●**Dimensions** (Unit : mm)

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

© 2012 ROHM Co., Ltd. All rights reserved.

Downloaded from Arrow.com.

Notes

1) The information contained herein is subject to change without notice.

2) Before you use our Products, please contact our sales representative and verify the latest specifications :

3) Although ROHM is continuously working to improve product reliability and quality, semiconductors can break down and malfunction due to various factors.
Therefore, in order to prevent personal injury or fire arising from failure, please take safety measures such as complying with the derating characteristics, implementing redundant and fire prevention designs, and utilizing backups and fail-safe procedures. ROHM shall have no responsibility for any damages arising out of the use of our Poducts beyond the rating specified by ROHM.

4) Examples of application circuits, circuit constants and any other information contained herein are provided only to illustrate the standard usage and operations of the Products. The peripheral conditions must be taken into account when designing circuits for mass production.

5) The technical information specified herein is intended only to show the typical functions of and examples of application circuits for the Products. ROHM does not grant you, explicitly or implicitly, any license to use or exercise intellectual property or other rights held by ROHM or any other parties. ROHM shall have no responsibility whatsoever for any dispute arising out of the use of such technical information.

6) The Products are intended for use in general electronic equipment (i.e. AV/OA devices, communication, consumer systems, gaming/entertainment sets) as well as the applications indicated in this document.

7) The Products specified in this document are not designed to be radiation tolerant.

8) For use of our Products in applications requiring a high degree of reliability (as exemplified below), please contact and consult with a ROHM representative : transportation equipment (i.e. cars, ships, trains), primary communication equipment, traffic lights, fire/crime prevention, safety equipment, medical systems, servers, solar cells, and power transmission systems.

9) Do not use our Products in applications requiring extremely high reliability, such as aerospace equipment, nuclear power control systems, and submarine repeaters.

10) ROHM shall have no responsibility for any damages or injury arising from non-compliance with the recommended usage conditions and specifications contained herein.

11) ROHM has used reasonable care to ensur the accuracy of the information contained in this document. However, ROHM does not warrants that such information is error-free, and ROHM shall have no responsibility for any damages arising from any inaccuracy or misprint of such information.

12) Please use the Products in accordance with any applicable environmental laws and regulations, such as the RoHS Directive. For more details, including RoHS compatibility, please contact a ROHM sales office. ROHM shall have no responsibility for any damages or losses resulting non-compliance with any applicable laws or regulations.

13) When providing our Products and technologies contained in this document to other countries, you must abide by the procedures and provisions stipulated in all applicable export laws and regulations, including without limitation the US Export Administration Regulations and the Foreign Exchange and Foreign Trade Act.

14) This document, in part or in whole, may not be reprinted or reproduced without prior consent of ROHM.

ROHM SEMICONDUCTOR

Thank you for your accessing to ROHM product informations.
More detail product informations and catalogs are available, please contact us.

ROHM Customer Support System

http://www.rohm.com/contact/

© 2012 ROHM Co., Ltd. All rights reserved.

Downloaded from Arrow.com.