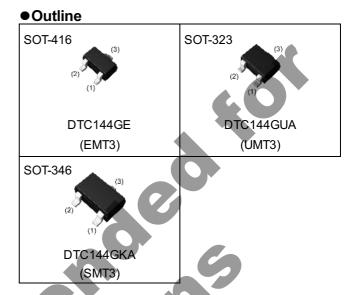


DTC144G series

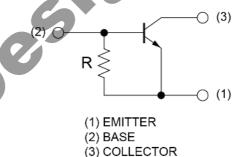
#### Features

**ROHM** 

- 1)Built-In Biasing Resistor
- 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 completely eliminating parasitic effects.
- 3)Complementary PNP Types: DTA144G series







## Application

INVERTER, INTERFACE, DRIVER

## Packaging specifications

Part No.	Package	Package size	Taping code	Reel size (mm)	Tape width (mm)	Basic ordering unit.(pcs)	Marking
DTC144GE	SOT-416 (EMT3)	1616	TL	180	8	3000	K26
DTC144GUA	SOT-323 (UMT3)	2021	T106	180	8	3000	K26
DTC144GKA	SOT-346 (SMT3)	2928	T146	180	8	3000	K26

# ● Absolute maximum ratings (T<sub>a</sub> = 25°C)

Parameter			Values	Unit	
Collector-base voltage			50	V	
Collector-emitter voltage			50	V	
Emitter-base voltage			5	V	
Collector current			100	mA	
	DTC144GE		150		
Power dissipation	DTC144GUA	$P_{D}^{*1}$	200	mW	
	DTC144GKA		200		
Junction temperature			150	°C	
Range of storage temperature			-55 to +150	°C	

# ●Electrical characteristics (T<sub>a</sub> = 25°C)

Parameter	Symbol	Conditions	Values			Unit
- Farameter	Symbol	Conditions	Min.	Тур.	Max.	Offic
Collector-base breakdown voltage	BV <sub>CBO</sub>	Ι <sub>C</sub> = 50μΑ	50	1	-	V
Collector-emitter breakdown voltage	BV <sub>CEO</sub>	I <sub>C</sub> = 1mA	50	ı	-	V
Emitter-base breakdown voltage	BV <sub>EBO</sub>	I <sub>E</sub> = 160μA	5	ı	-	V
Collector cut-off current	I <sub>CBO</sub>	V <sub>CB</sub> = 50V	-	-	500	nA
Emitter cut-off current	I <sub>EBO</sub>	V <sub>EB</sub> = 4V	65	-	130	μA
Collector-emitter saturation voltage	V <sub>CE(sat)</sub>	$I_{C} = 10$ mA, $I_{B} = 0.5$ mA	-	ı	300	mV
DC current gain	h <sub>FE</sub>	$V_{CE} = 5V, I_{C} = 5mA$	68	ı	-	-
Emitter-base resistance	R	-	32.9	47	61.1	kΩ
Transition frequency	f <sub>T</sub> *2	V <sub>CE</sub> = 10V, I <sub>E</sub> = -5mA, f = 100MHz	-	250	-	MHz

<sup>\*1</sup> Each terminal mounted on a reference land.

<sup>\*2</sup> Characteristics of built-in transistor

## ● Electrical characteristic curves (T<sub>a</sub> =25°C)

Fig.1 Grounded emitter propagation characteristics

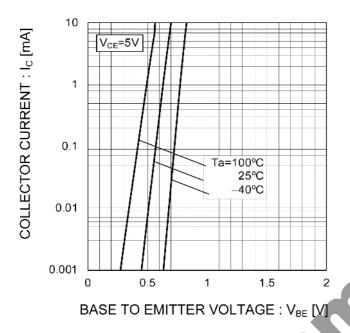


Fig.2 Grounded emitter output characteristics

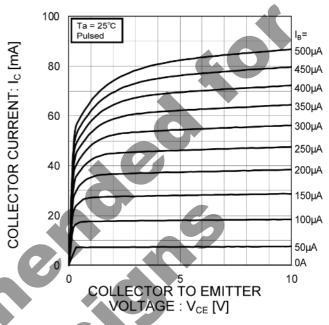


Fig.3 DC Current gain vs. Collector Current

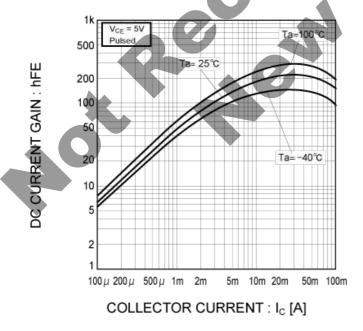
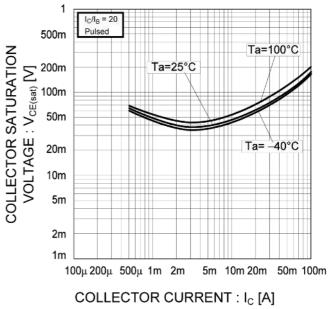
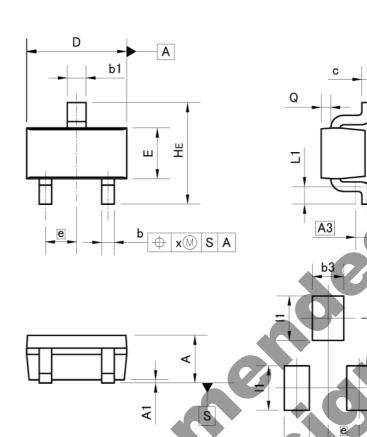


Fig.4 Collector-emitter saturation voltage vs. Collector Current



### Dimensions

SOT-416 SC-75A (EMT3)



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

b2

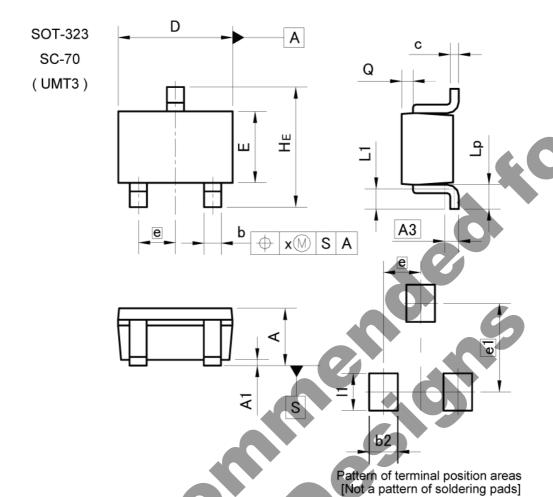
DIM	MILIME	TERS	INC	HES
DIM	MIN	MAX	MIN	MAX
A	0.60	0.80	0.024	0.031
A1	0.00	0.10	0.000	0.004
A3	0.2	25	0.0	10
ь	0.15	0.30	0.006	0.012
b1	0.25	0.40	0.010	0.016
С	0.10	0.20	0.004	0.008
D	1.50	1.70	0.059	0.067
E	0.70	0.90	0.028	0.035
е	0.5	50	0.0	20
HE	1.40	1.80	0.055	0.071
L1	0.10		0.004	S <del>H</del>
Lp	0.15	= =	0.006	2 <del>11</del>
Q	0.05	0.25	0.002	0.010
×	0 <del></del>	0.10		0.004

DIM	MILIM	MILIMETERS		HES
DIM	MIN	MAX	MIN	MAX
b2	N <del>ia</del>	0.40	-	0.016
b3	: <del></del>	0.50	-	0.020
e1	1.10		0.0	043
11	0 <del></del>	0.70	9 <del></del> 3	0.028

Dimension in mm/inches



### Dimensions



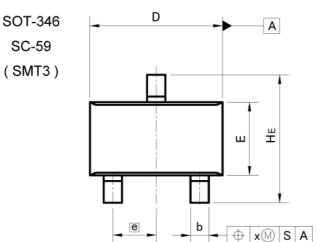
DIM	MILIMETERS		INCHES	
DIM	MIN	MAX	MIN	MAX
A	0.80	1.00	0.031	0.039
A1	0.00	0.10	0	0.004
A3	0.	25	0.0	01
Ь	0.25	0.40	0.01	0.016
С	0.10	0.20	0.004	0.008
D	1.90	2.10	0.075	0.083
E	1.15	1.35	0.045	0.053
е	0.	65	0.0	03
HE	2.00	2.20	0.079	0.087
L1	0.20	0.50	0.008	0.02
Lp	0.25	0.55	0.01	0.022
Q	0.10	0.30	0.004	0.012
x	_	0.10	_	0.004

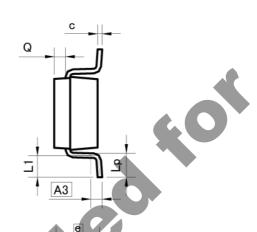
DIM	MILIM	ETERS	INC	HES
DIM	MIN	MAX	MIN	MAX
e1	1.5	1.55		06
b2	=	0.50	<u> </u>	0.02
11	_	0.65	-	0.026

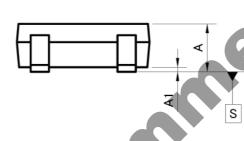
Dimension in mm/inches



### Dimensions









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

DIM	MILIMETERS		INCHES		
DIM	MIN	MAX	MIN	MAX	
A	1.00	1.30	0.039	0.051	
(A1	0.00	0.10	0.000	0.004	
A3	0.1	25	0.0	10	
b	0.35	0.50	0.014	0.020	
С	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	
е	0.9	95	0.037		
HE	2.60	3.00	0.102	0.118	
L1	0.30	0.60	0.012	0.024	
Lр	0.40	0.70	0.016	0.028	
Q	0.20	0.30	0.008	0.012	
×	-	0.10	16 <del>17</del>	0.004	
У	-8	0.10	24	0.004	

DIM MILIME	MILIMETERS		INC	HES	
DIM	MIN	MAX	MIN	MAX	
b2		0.60	8 <del></del>	0.024	
e1	2.10		0.0	083	
11	-0	0.90	0 <del></del>	0.035	

Dimension in mm/inches

# **Notice**

#### **Precaution on using ROHM Products**

Our Products are designed and manufactured for application in ordinary electronic equipments (such as AV equipment, OA equipment, telecommunication equipment, home electronic appliances, amusement equipment, etc.). If you intend to use our Products in devices requiring extremely high reliability (such as medical equipment (Note 1), transport equipment, traffic equipment, aircraft/spacecraft, nuclear power controllers, fuel controllers, car equipment including car accessories, safety devices, etc.) and whose malfunction or failure may cause loss of human life, bodily injury or serious damage to property ("Specific Applications"), please consult with the ROHM sales representative in advance. Unless otherwise agreed in writing by ROHM in advance, ROHM shall not be in any way responsible or liable for any damages, expenses or losses incurred by you or third parties arising from the use of any ROHM's Products for Specific Applications.

(Note1) Medical Equipment Classification of the Specific Applications

JAPAN	USA	EU	CHINA
CLASSⅢ	CL ACCTI	CLASS II b	СГАССШ
CLASSIV	CLASSⅢ	CLASSⅢ	CLASSII

- 2. ROHM designs and manufactures its Products subject to strict quality control system. However, semiconductor products can fail or malfunction at a certain rate. Please be sure to implement, at your own responsibilities, adequate safety measures including but not limited to fail-safe design against the physical injury, damage to any property, which a failure or malfunction of our Products may cause. The following are examples of safety measures:

  - [a] Installation of protection circuits or other protective devices to improve system safety [b] Installation of redundant circuits to reduce the impact of single or multiple circuit failure
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  - [b] Use of our Products outdoors or in places where the Products are exposed to direct sunlight or dust
  - [c] Use of our Products in places where the Products are exposed to sea wind or corrosive gases, including Cl2, H2S, NH3, SO2, and NO2
  - [d] Use of our Products in places where the Products are exposed to static electricity or electromagnetic waves
  - [e] Use of our Products in proximity to heat-producing components, plastic cords, or other flammable items
  - [f] Sealing or coating our Products with resin or other coating materials
  - [g] Use of our Products without cleaning residue of flux (even if you use no-clean type fluxes, cleaning residue of flux is recommended); or Washing our Products by using water or water-soluble cleaning agents for cleaning residue after soldering
  - [h] Use of the Products in places subject to dew condensation
- 4. The Products are not subject to radiation-proof design.
- Please verify and confirm characteristics of the final or mounted products in using the Products.
- In particular, if a transient load (a large amount of load applied in a short period of time, such as pulse, is applied, confirmation of performance characteristics after on-board mounting is strongly recommended. Avoid applying power exceeding normal rated power; exceeding the power rating under steady-state loading condition may negatively affect product performance and reliability.
- De-rate Power Dissipation (Pd) depending on Ambient temperature (Ta). When used in sealed area, confirm the actual ambient temperature.
- Confirm that operation temperature is within the specified range described in the product specification.
- ROHM shall not be in any way responsible or liable for failure induced under deviant condition from what is defined in this document.

#### Precaution for Mounting / Circuit board design

- When a highly active halogenous (chlorine, bromine, etc.) flux is used, the residue of flux may negatively affect product performance and reliability.
- In principle, the reflow soldering method must be used on a surface-mount products, the flow soldering method must be used on a through hole mount products. If the flow soldering method is preferred on a surface-mount products, please consult with the ROHM representative in advance.

For details, please refer to ROHM Mounting specification

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- 1. If change is made to the constant of an external circuit, please allow a sufficient margin considering variations of the characteristics of the Products and external components, including transient characteristics, as well as static characteristics.
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#### **Precaution for Electrostatic**

This Product is electrostatic sensitive product, which may be damaged due to electrostatic discharge. Please take proper caution in your manufacturing process and storage so that voltage exceeding the Products maximum rating will not be applied to Products. Please take special care under dry condition (e.g. Grounding of human body / equipment / solder iron, isolation from charged objects, setting of lonizer, friction prevention and temperature / humidity control).

#### **Precaution for Storage / Transportation**

- 1. Product performance and soldered connections may deteriorate if the Products are stored in the places where:
  - [a] the Products are exposed to sea winds or corrosive gases, including CI2, H2S, NH3, SO2, and NO2
  - [b] the temperature or humidity exceeds those recommended by ROHM
  - [c] the Products are exposed to direct sunshine or condensation
  - [d] the Products are exposed to high Electrostatic
- 2. Even under ROHM recommended storage condition, solderability of products out of recommended storage time period may be degraded. It is strongly recommended to confirm solderability before using Products of which storage time is exceeding the recommended storage time period.
- 3. Store / transport cartons in the correct direction, which is indicated on a carton with a symbol. Otherwise bent leads may occur due to excessive stress applied when dropping of a carton.
- 4. Use Products within the specified time after opening a humidity barrier bag. Baking is required before using Products of which storage time is exceeding the recommended storage time period.

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When disposing Products please dispose them properly using an authorized industry waste company.

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