

Parameter	Value
V_{CEO}	-50V
I_C	-60mA
R_1	47k Ω

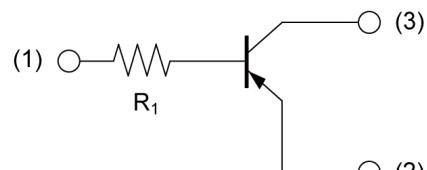
●Features

- 1) Built-In Biasing Resistors, $R_1 = 47k\Omega$
- 2) Built-in bias resistors enable the configuration of an inverter circuit without connecting external input resistors (see inner circuit).
- 3) Only the on/off conditions need to be set for operation, making the circuit design easy.
- 4) Complementary NPN Types: DTC044T series

●Outline

SOT-723 DTA044TM (VMT3)	SOT-416FL DTA044TEB (EMT3F)
SOT-323FL DTA044TUB (UMT3F)	

●Inner circuit



(1) BASE
(2) Emitter
(3) COLLECTOR

●Application

INVERTER, INTERFACE, DRIVER

●Packaging specifications

Part No.	Package	Package size	Taping code	Reel size (mm)	Tape width (mm)	Basic ordering unit.(pcs)	Marking
DTA044TM	SOT-723 (VMT3)	1212	T2L	180	8	8000	08
DTA044TEB	SOT-416FL (EMT3F)	1616	TL	180	8	3000	08
DTA044TUB	SOT-323FL (UMT3F)	2021	TL	180	8	3000	08

● 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}	-50	V
Emitter-base voltage	V_{EBO}	-5	V
Collector current	I_C^{*1}	-60	mA
Power dissipation	DTA044TM	150	mW
	DTA044TEB	150	
	DTA044TUB	200	
Junction temperature	T_j	150	°C
Range of storage temperature	T_{stg}	-55 to +150	°C

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

Parameter	Symbol	Conditions	Values			Unit
			Min.	Typ.	Max.	
Collector-base breakdown voltage	BV_{CBO}	$I_C = -50\mu\text{A}$	-50	-	-	V
Collector-emitter breakdown voltage	BV_{CEO}	$I_C = -1\text{mA}$	-50	-	-	V
Emitter-base breakdown voltage	BV_{EBO}	$I_E = -50\mu\text{A}$	-5	-	-	V
Collector cut-off current	I_{CBO}	$V_{CB} = -50\text{V}$	-	-	-500	nA
Emitter cut-off current	I_{EBO}	$V_{EB} = -4\text{V}$	-	-	-500	nA
Collector-emitter saturation voltage	$V_{CE(\text{sat})}$	$I_C = -5\text{mA}, I_B = -0.5\text{mA}$	-	-70	-150	mV
DC current gain	h_{FE}	$V_{CE} = -10\text{V}, I_C = -5\text{mA}$	100	-	600	-
Input resistance	R_1	-	32.9	47	61.1	kΩ
Transition frequency	f_T^{*1}	$V_{CE} = -10\text{V}, I_E = 5\text{mA}, f = 100\text{MHz}$	-	250	-	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

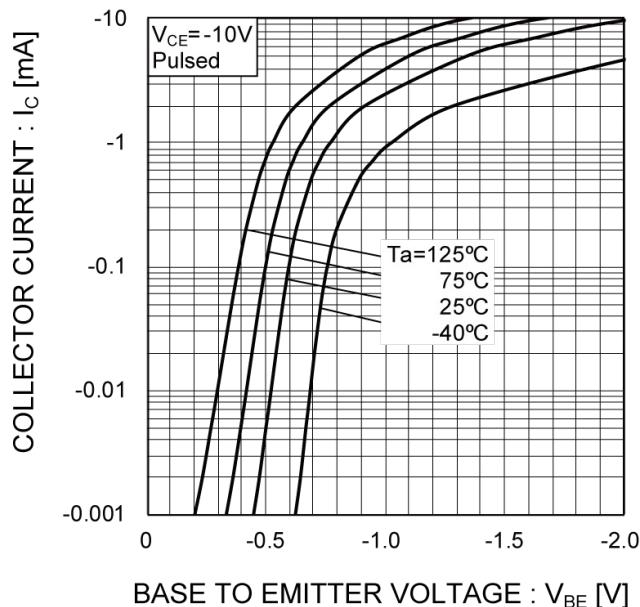


Fig.2 Grounded emitter output characteristics

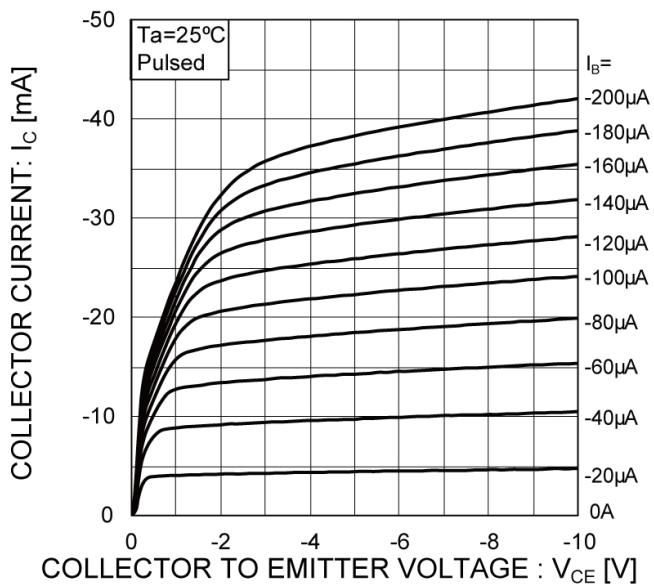


Fig.3 DC Current gain vs. Collector Current

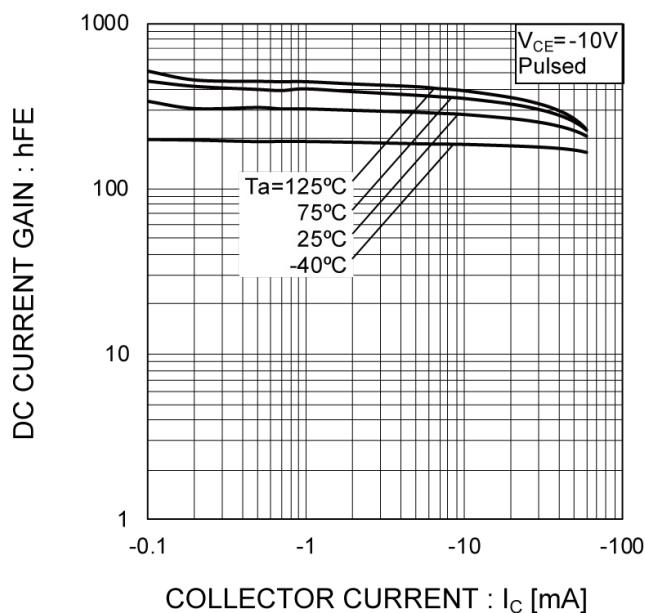
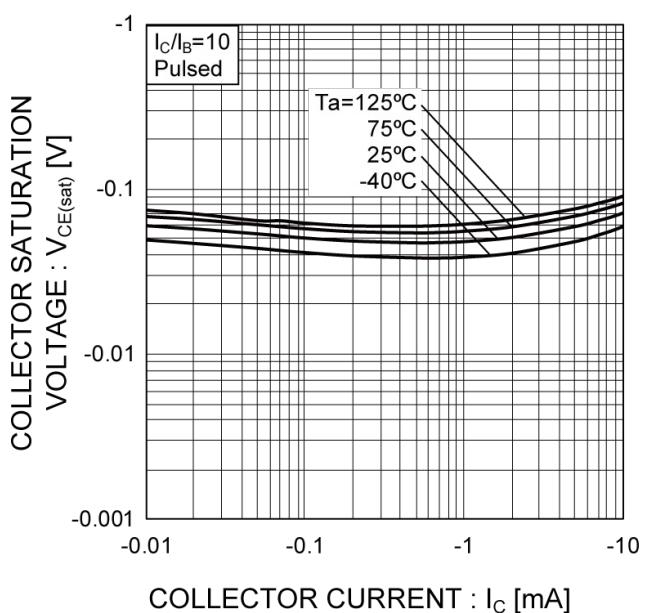
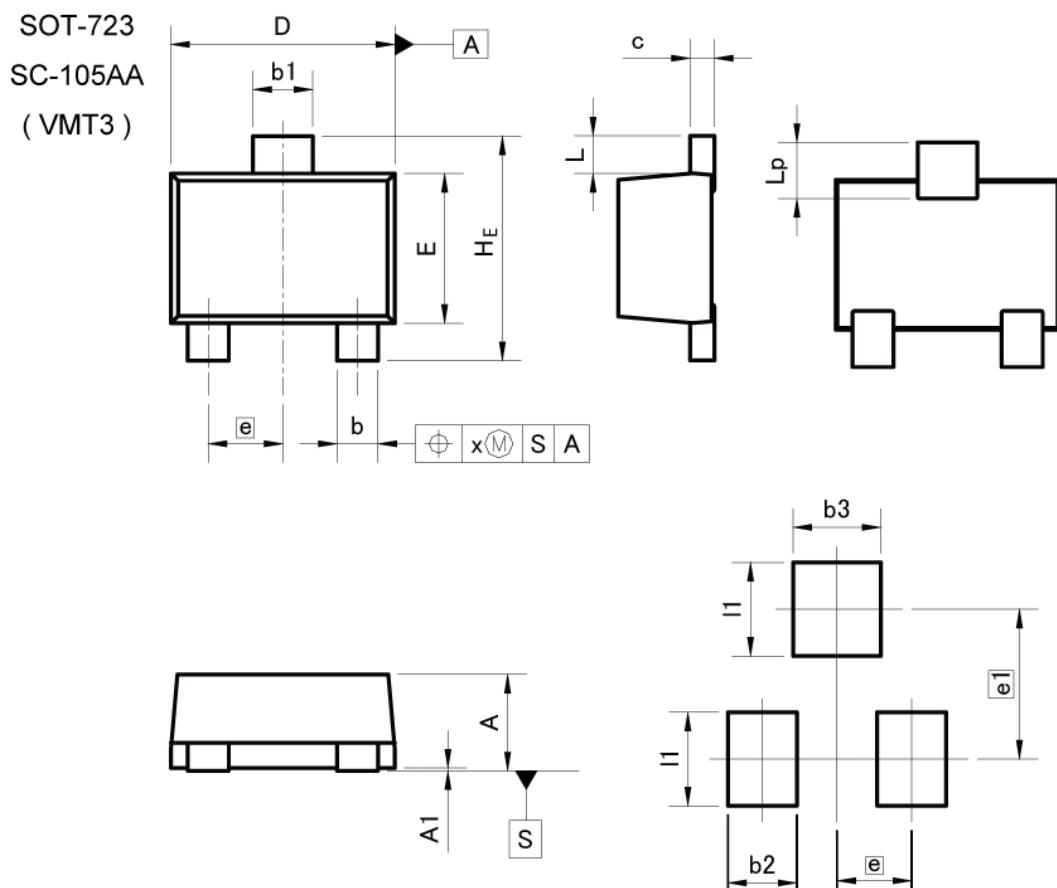


Fig.4 Collector-emitter saturation voltage vs. Collector Current



●Dimensions



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

DIM	MILLIMETERS		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
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	
H_E	1.10	1.30	0.043	0.051
L	0.10	0.30	0.004	0.012
L_p	0.20	0.40	0.008	0.016
x	—	0.10	—	0.004

DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
b2	—	0.37	—	0.015
b3	—	0.47	—	0.019
e1	0.80		0.031	
l1	—	0.50	—	0.020

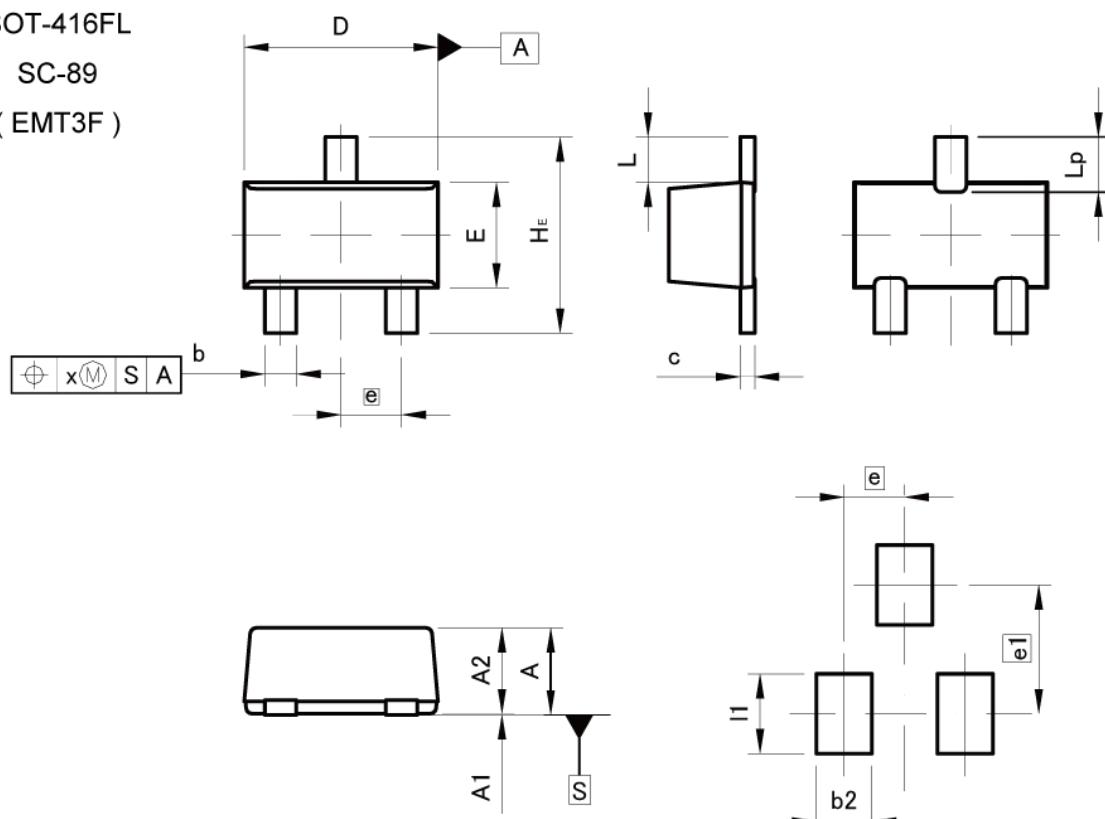
Dimension in mm/inches

●Dimensions

SOT-416FL

SC-89

(EMT3F)



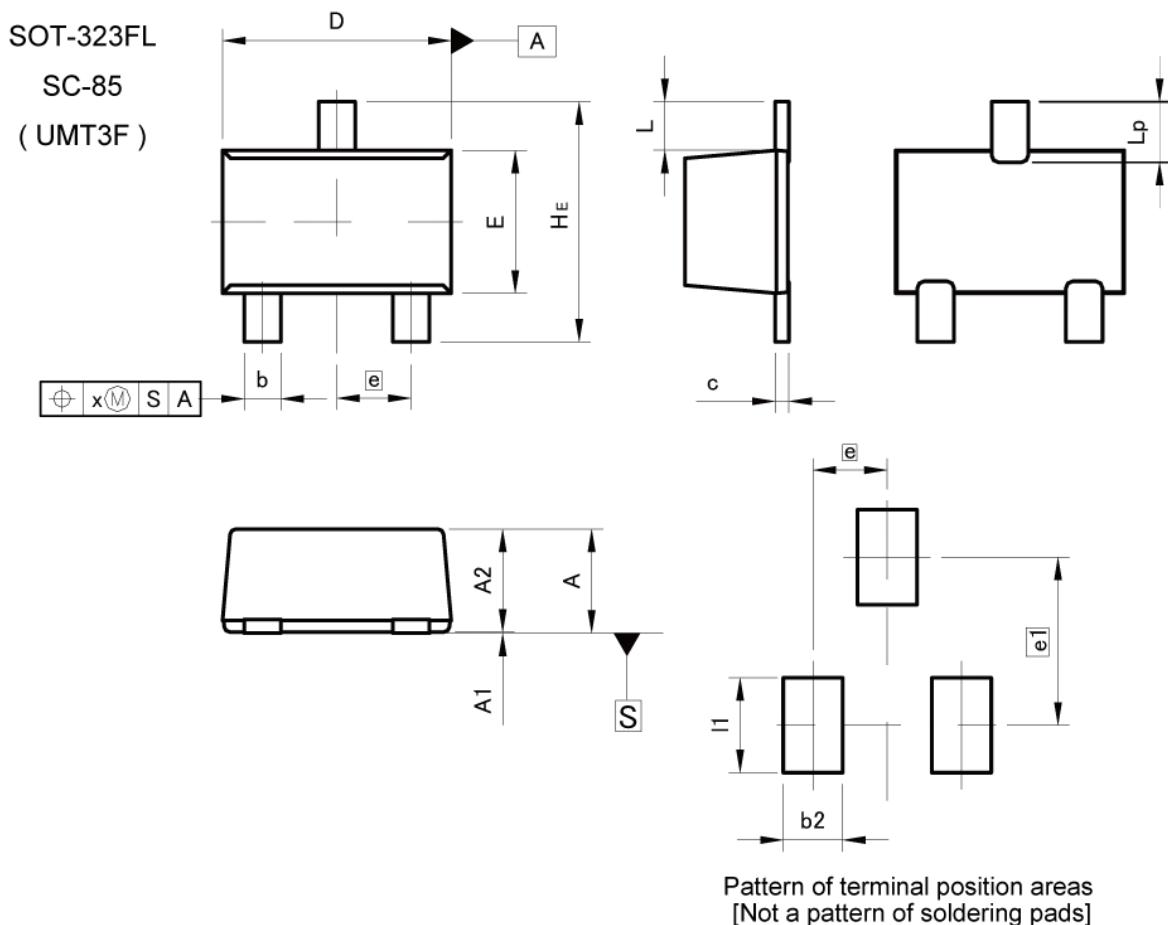
Pattern of terminal position areas
[Not a pattern of soldering pads]

DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	0.65	0.85	0.026	0.033
A1	0.00	0.10	0.000	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	0.030	0.038
e	0.50		0.020	
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	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
b2	—	0.46	—	0.018
e1	—	1.05	—	0.041
l1	—	0.65	—	0.026

Dimension in mm/inches

●Dimensions



DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	0.85	1.05	0.033	0.041
A1	0.00	0.10	0.000	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		0.026	
HE	2.00	2.20	0.079	0.087
L	0.425		0.017	
Lp	0.43	0.63	0.017	0.025
x	—	0.10	—	0.004

DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
b2	—	0.52	—	0.020
e1	1.47		0.058	
l1	—	0.83	—	0.033

Dimension in mm/inches

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1. 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
CLASS III	CLASS III	CLASS II b	CLASS III
CLASS IV		CLASS III	

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 - [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.
5. Please verify and confirm characteristics of the final or mounted products in using the Products.
6. 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.
7. De-rate Power Dissipation depending on ambient temperature. When used in sealed area, confirm that it is the use in the range that does not exceed the maximum junction temperature.
8. Confirm that operation temperature is within the specified range described in the product specification.
9. 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

1. When a highly active halogenous (chlorine, bromine, etc.) flux is used, the residue of flux may negatively affect product performance and reliability.
2. 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

Precautions Regarding Application Examples and External Circuits

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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 Ionizer, 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 Cl₂, 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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A two-dimensional barcode printed on ROHM Products label is for ROHM's internal use only.

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Part Number	DTA044TEB
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Minimum Package Quantity	3000
Packing Type	Taping
Constitution Materials List	inquiry
RoHS	Yes

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