

Parameter	Tr1 and Tr2
$V_{CE0}$	-12V
$I_C$	-500mA

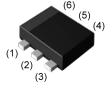
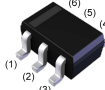
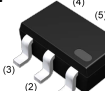
### ●Features

- 1)Two 2SA2018 chips in a EMT or UMT or SMT package.
- 2)Mounting possible with EMT3 or UMT3 or SMT3 automatic mounting machines.
- 3)Transistor elements are independent, eliminating interference.

### ●Application

LOW FREQUENCY AMPLIFIER, DRIVER

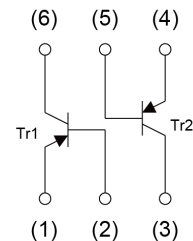
### ●Outline

<p>SOT-563</p>  <p>EMT18 (EMT6)</p>	<p>SOT-363</p>  <p>UMT18N (UMT6)</p>
<p>SOT-457</p>  <p>IMT18 (SMT6)</p>	

### ●Inner circuit

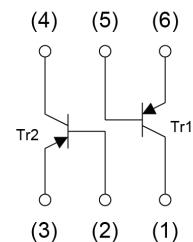
#### EMT18 / UMT18N

- (1) Tr1 Emitter
- (2) Tr1 Base
- (3) Tr2 Collector
- (4) Tr2 Emitter
- (5) Tr2 Base
- (6) Tr1 Collector



#### IMT18

- (1) Tr1 Collector
- (2) Tr2 Base
- (3) Tr2 Emitter
- (4) Tr2 Collector
- (5) Tr1 Base
- (6) Tr1 Emitter



### ●Packaging specifications

Part No.	Package	Package size	Taping code	Reel size (mm)	Tape width (mm)	Basic ordering unit.(pcs)	Marking
EMT18	SOT-563 (EMT6)	1616	T2R	180	8	8000	T18
UMT18N	SOT-363 (UMT6)	2021	TR	180	8	3000	T18
IMT18	SOT-457 (SMT6)	2928	T108	180	8	3000	T18

● **Absolute maximum ratings** ( $T_a = 25^\circ\text{C}$ )

<It is the same ratings for the Tr1 and Tr2>

Parameter		Symbol	Values	Unit
Collector-base voltage		$V_{CBO}$	-15	V
Collector-emitter voltage		$V_{CEO}$	-12	V
Emitter-base voltage		$V_{EBO}$	-6	V
Collector current		$I_C$	-500	mA
		$I_{CP}^{*1}$	-1	A
Power dissipation	EMT18/ UMT18N	$P_D^{*2*3}$	150	mW/Total
	IMT18	$P_D^{*2*4}$	300	mW/Total
Junction temperature		$T_j$	150	$^\circ\text{C}$
Range of storage temperature		$T_{stg}$	-55 to +150	$^\circ\text{C}$

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

<It is the same characteristics for the Tr1 and Tr2>

Parameter	Symbol	Conditions	Values			Unit
			Min.	Typ.	Max.	
Collector-base breakdown voltage	$BV_{CBO}$	$I_C = -10\mu\text{A}$	-15	-	-	V
Collector-emitter breakdown voltage	$BV_{CEO}$	$I_C = -1\text{mA}$	-12	-	-	V
Emitter-base breakdown voltage	$BV_{EBO}$	$I_E = -10\mu\text{A}$	-6	-	-	V
Collector cut-off current	$I_{CBO}$	$V_{CB} = -15\text{V}$	-	-	-100	nA
Emitter cut-off current	$I_{EBO}$	$V_{EB} = -6\text{V}$	-	-	-100	nA
Collector-emitter saturation voltage	$V_{CE(sat)}$	$I_C = -200\text{mA}, I_B = -10\text{mA}$	-	-100	-250	mV
DC current gain	$h_{FE}$	$V_{CE} = -2\text{V}, I_C = -10\text{mA}$	270	-	680	-
Transition frequency	$f_T$	$V_{CE} = -2\text{V}, I_E = 10\text{mA}, f = 100\text{MHz}$	-	260	-	MHz
Output capacitance	$C_{ob}$	$V_{CB} = -10\text{V}, I_E = 0\text{A}, f = 1\text{MHz}$	-	6.5	-	pF

\*1  $P_w=1\text{ms}$  Single Pulse

\*2 Each terminal mounted on a reference land

\*3 120mW per element must not be exceeded.

\*4 200mW per element must not be exceeded.

● **Electrical characteristic curves** ( $T_a = 25^\circ\text{C}$ )

<For Tr1 and Tr2 in common>

Fig.1 Grounded emitter propagation characteristics

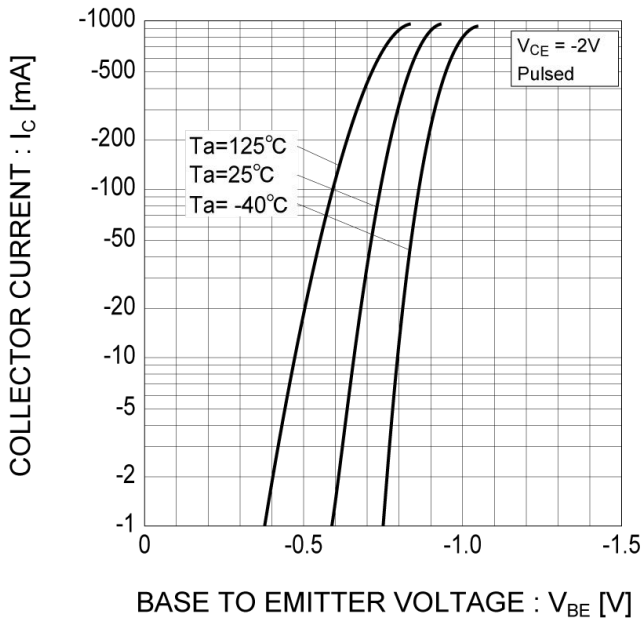


Fig.2 Typical output characteristics

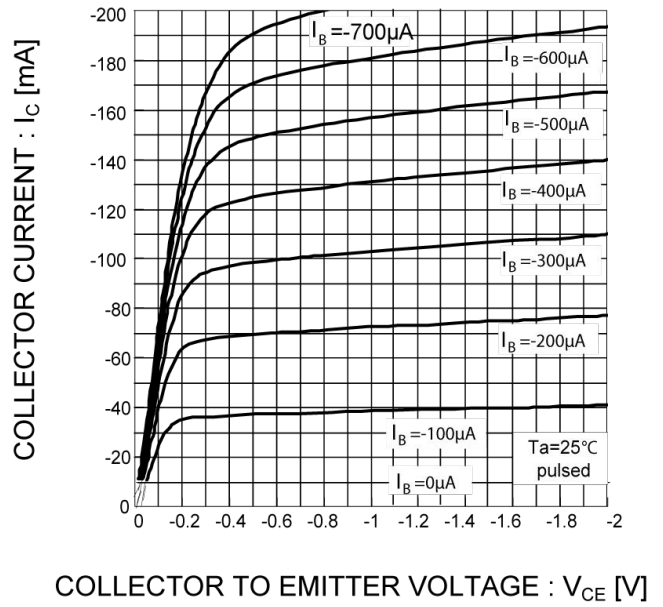


Fig.3 DC current gain vs. collector current (I)

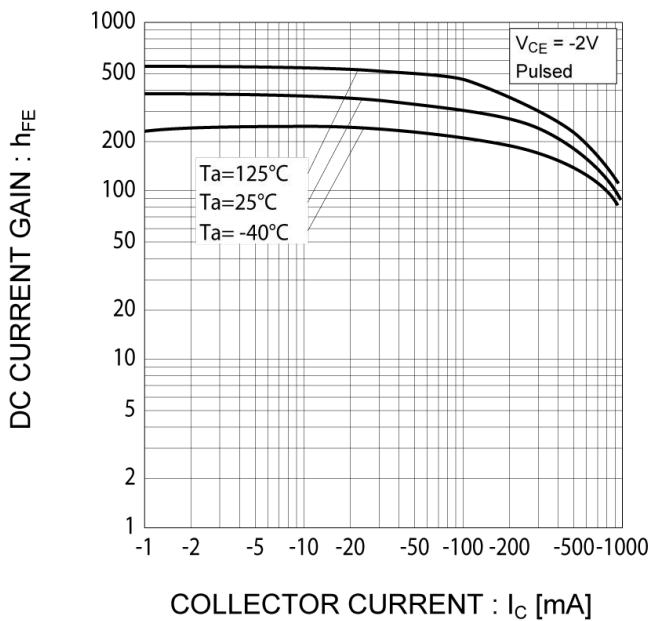
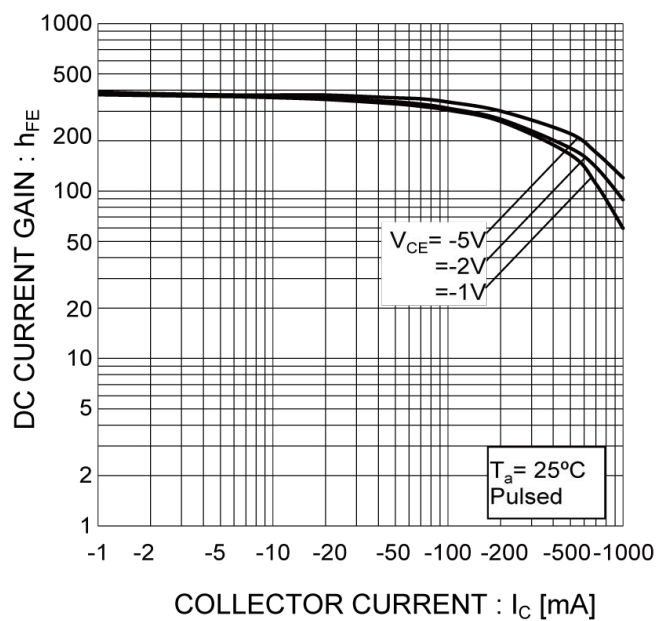


Fig.4 DC current gain vs. collector current (II)



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

<For Tr1 and Tr2 in common>

Fig.5 Collector-emitter saturation voltage vs. collector current (I)

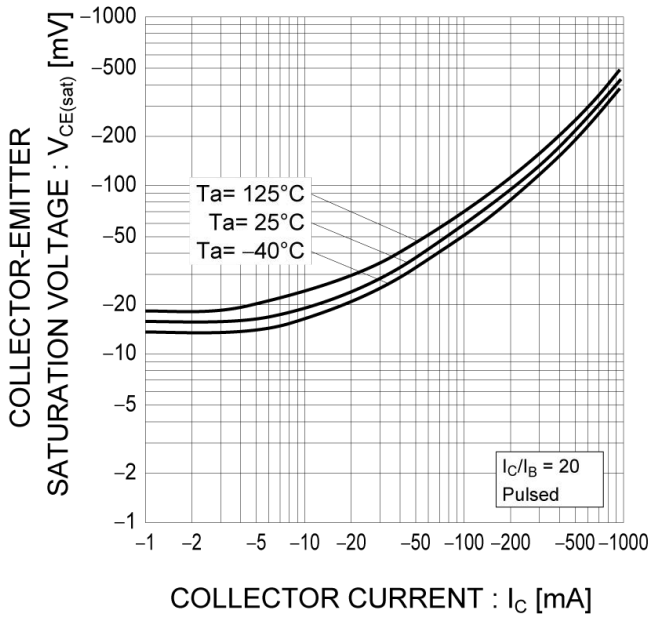


Fig.6 Collector-emitter saturation voltage vs. collector current (II)

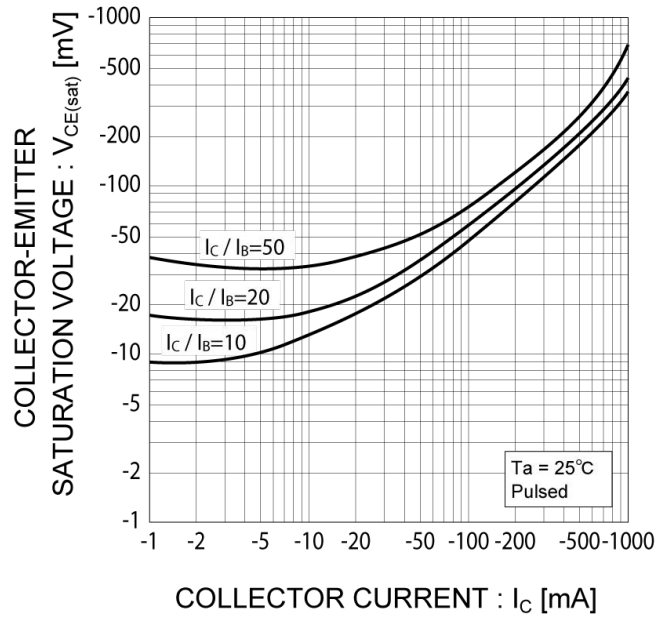


Fig.7 Base-emitter saturation voltage vs. collector current

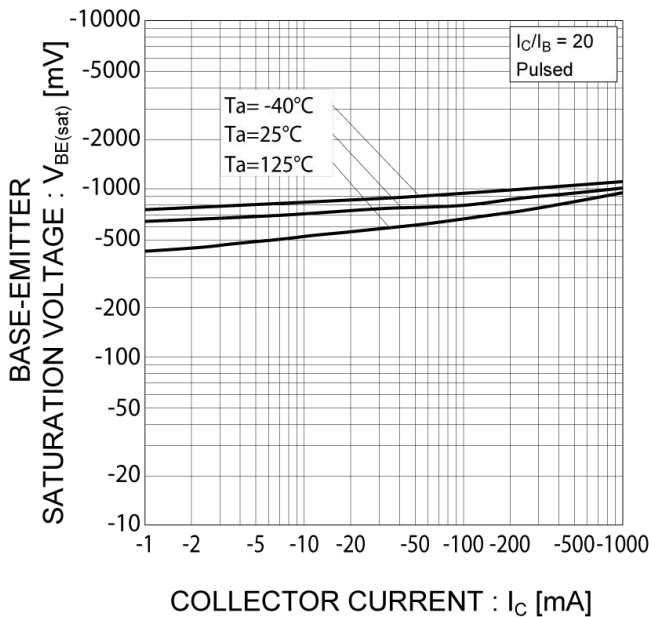
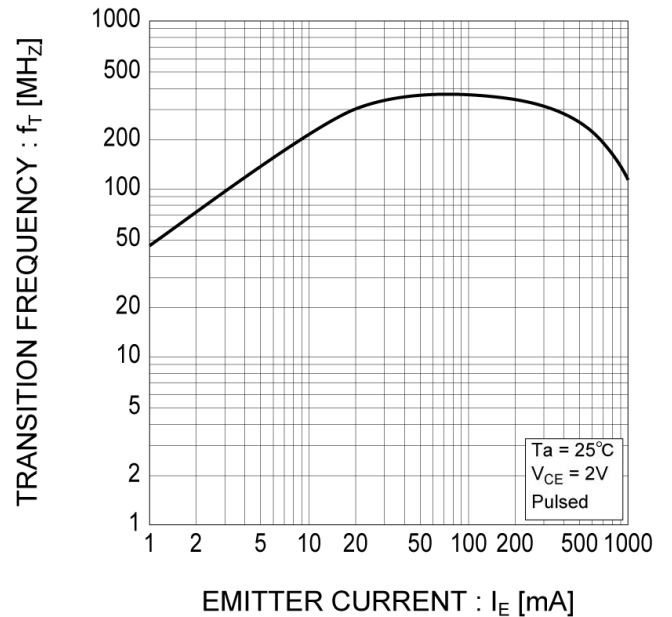


Fig.8 Gain bandwidth product vs. emitter current



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

<For Tr1 and Tr2 in common>

Fig.9 Collector output capacitance vs. collector-base voltage  
Emitter input capacitance vs. emitter-base voltage

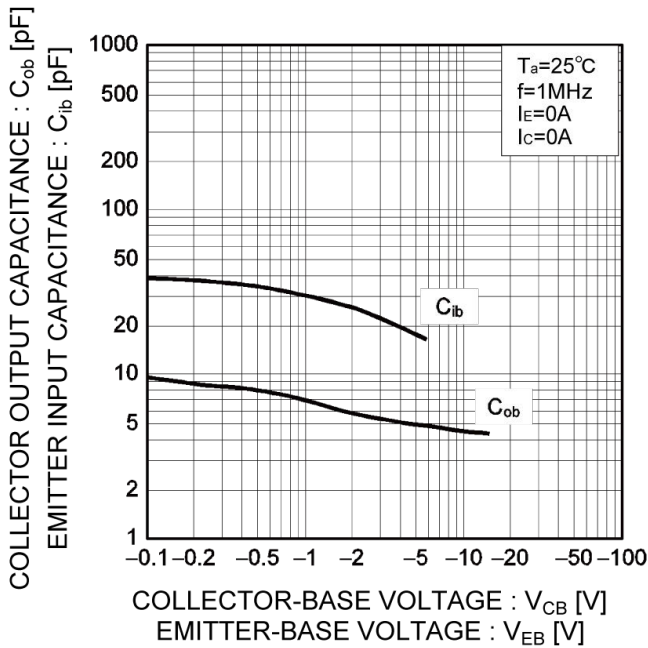


Fig.10 Safe Operating Area

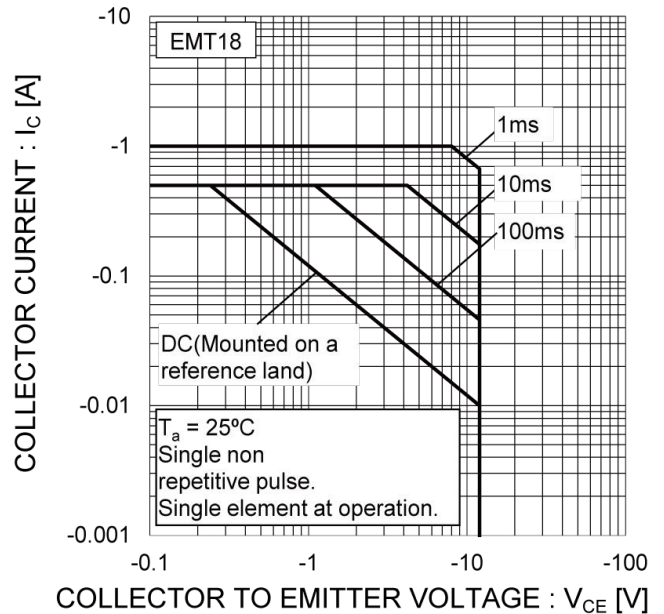


Fig.11 Safe Operating Area

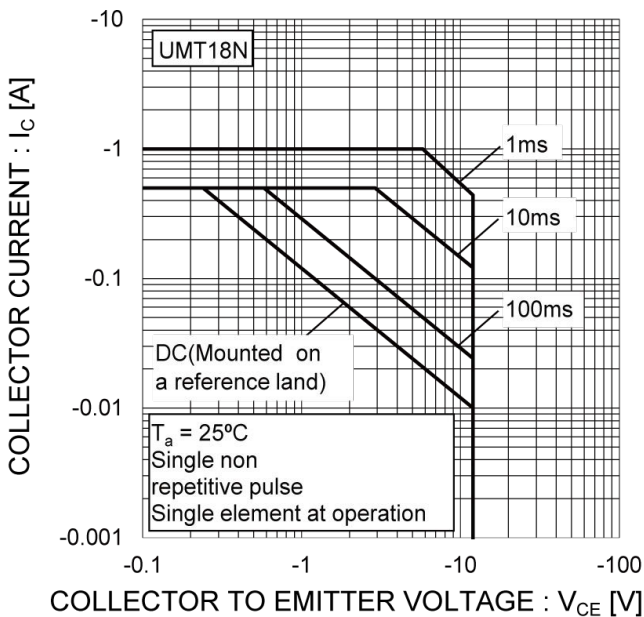
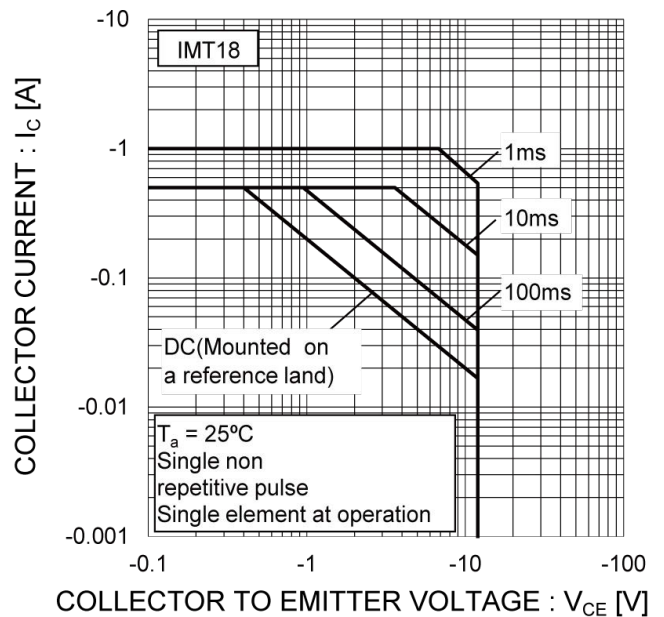
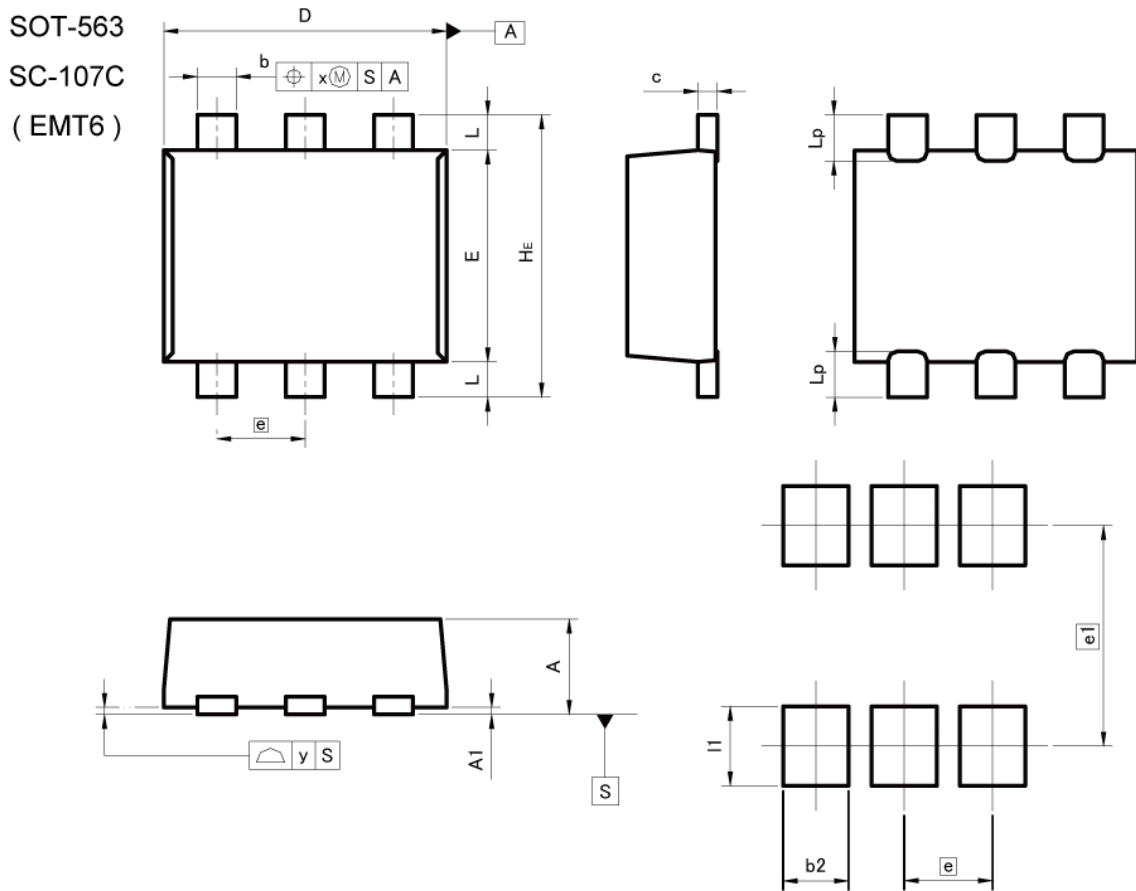


Fig.12 Safe Operating Area



●Dimensions



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

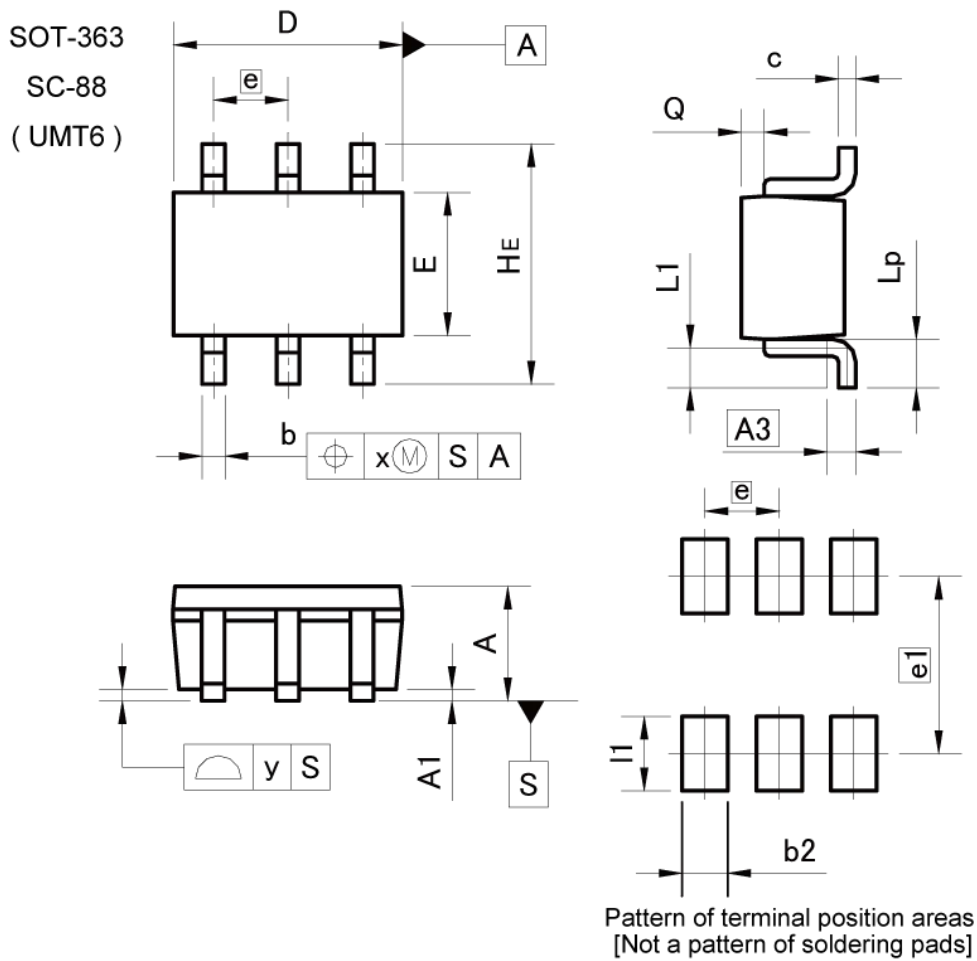
DIM	MILIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	0.45	0.55	0.018	0.022
A1	0.00	0.10	0.000	0.004
b	0.17	0.27	0.007	0.011
c	0.08	0.18	0.003	0.007
D	1.50	1.70	0.059	0.067
E	1.10	1.30	0.043	0.051
e	0.50		0.020	
HE	1.50	1.70	0.059	0.067
L	0.10	0.30	0.004	0.012
Lp	-	0.35	-	0.014
x	-	0.10	-	0.004
y	-	0.10	-	0.004

DIM	MILIMETERS		INCHES	
	MIN	MAX	MIN	MAX
b2	-	0.37	-	0.015
e1	1.25		0.049	
I1	-	0.45	-	0.018

Dimension in mm/inches

●Dimensions



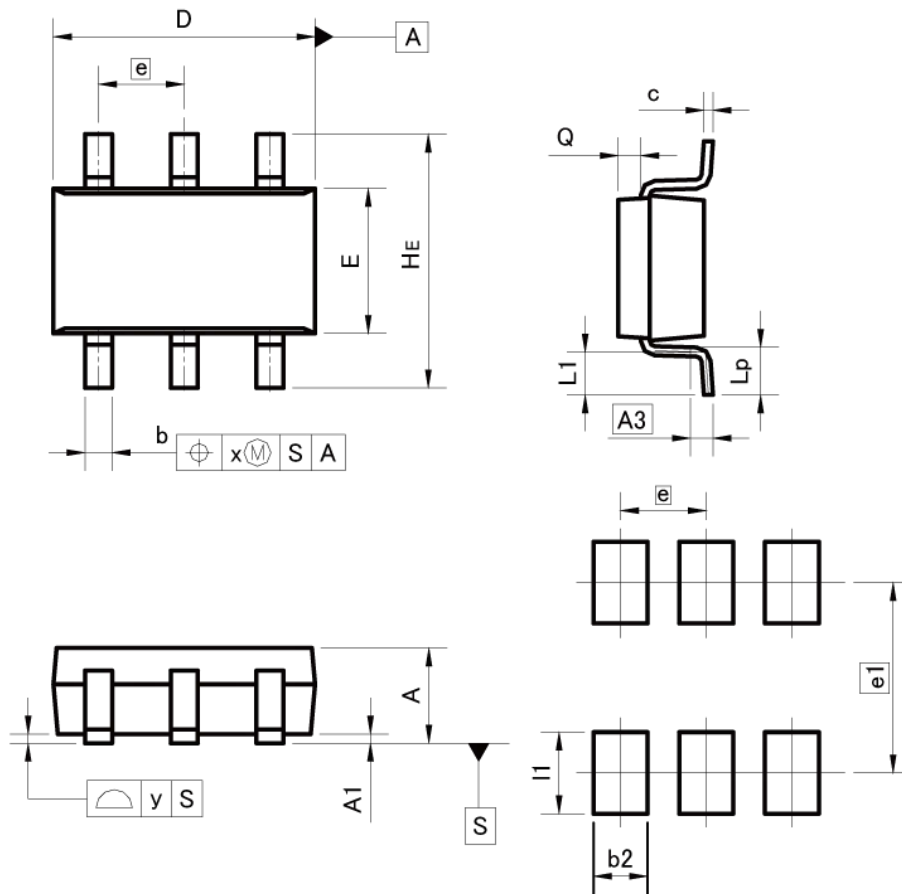
DIM	MILIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	0.80	1.00	0.031	0.039
A1	0.00	0.10	0.000	0.004
A3	0.25		0.010	
b	0.15	0.30	0.006	0.012
c	0.10	0.20	0.004	0.008
D	1.90	2.10	0.075	0.083
E	1.15	1.35	0.045	0.053
e	0.65		0.026	
HE	2.00	2.20	0.079	0.087
L1	0.20	0.50	0.008	0.020
Lp	0.25	0.55	0.010	0.022
Q	0.10	0.30	0.004	0.012
x	-	0.10	-	0.004
y	-	0.10	-	0.004

DIM	MILIMETERS		INCHES	
	MIN	MAX	MIN	MAX
b2	-	0.40	-	0.016
e1	1.55		0.061	
l1	-	0.65	-	0.026

Dimension in mm/inches

●Dimensions

SOT-457  
 SC-74  
 (SMT6)



Pattern of terminal position areas  
 [Not a 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	0.25	0.40	0.010	0.016
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	-	0.20	-	0.008
y	-	0.10	-	0.004

DIM	MILIMETERS		INCHES	
	MIN	MAX	MIN	MAX
b2	-	0.60	-	0.024
e1	2.10		0.083	
I1	-	0.90	-	0.035

Dimension in mm/inches



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JAPAN	USA	EU	CHINA
CLASS III	CLASS III	CLASS II b	CLASS III
CLASS IV		CLASS III	

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  - Installation of redundant circuits to reduce the impact of single or multiple circuit failure
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  - Use of our Products in any types of liquid, including water, oils, chemicals, and organic solvents
  - Use of our Products outdoors or in places where the Products are exposed to direct sunlight or dust
  - Use of our Products in places where the Products are exposed to sea wind or corrosive gases, including Cl<sub>2</sub>, H<sub>2</sub>S, NH<sub>3</sub>, SO<sub>2</sub>, and NO<sub>2</sub>
  - Use of our Products in places where the Products are exposed to static electricity or electromagnetic waves
  - Use of our Products in proximity to heat-producing components, plastic cords, or other flammable items
  - Sealing or coating our Products with resin or other coating materials
  - 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
  - Use of the Products in places subject to dew condensation
- 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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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 Cl<sub>2</sub>, H<sub>2</sub>S, NH<sub>3</sub>, SO<sub>2</sub>, and NO<sub>2</sub>
  - [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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- Поставка более 17-ти миллионов наименований электронных компонентов;
- Поставка сложных, дефицитных, либо снятых с производства позиций;
- Оперативные сроки поставки под заказ (от 5 рабочих дней);
- Экспресс доставка в любую точку России;
- Техническая поддержка проекта, помощь в подборе аналогов, поставка прототипов;
- Система менеджмента качества сертифицирована по Международному стандарту ISO 9001;
- Лицензия ФСБ на осуществление работ с использованием сведений, составляющих государственную тайну;
- Поставка специализированных компонентов (Xilinx, Altera, Analog Devices, Intersil, Interpoint, Microsemi, Aeroflex, Peregrine, Syfer, Eurofarad, Texas Instrument, Miteq, Cobham, E2V, MA-COM, Hittite, Mini-Circuits, General Dynamics и др.);

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- Подбор аналогов;
- Консультации по применению компонента;
- Поставка образцов и прототипов;
- Техническая поддержка проекта;
- Защита от снятия компонента с производства.



#### Как с нами связаться

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**Факс:** 8 (812) 320-02-42

**Электронная почта:** [org@eplast1.ru](mailto:org@eplast1.ru)

**Адрес:** 198099, г. Санкт-Петербург, ул. Калинина, дом 2, корпус 4, литера А.