

# 2SC4027T-TL-E Datasheet



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DiGi Electronics Part Number	2SC4027T-TL-E-DG
Manufacturer	<a href="#">onsemi</a>
Manufacturer Product Number	2SC4027T-TL-E
Description	TRANS NPN 160V 1.5A TP-FA
Detailed Description	Bipolar (BJT) Transistor NPN 160 V 1.5 A 120MHz 1 W Surface Mount TP-FA



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## Purchase and inquiry

Manufacturer Product Number:

2SC4027T-TL-E

Series:

-

Transistor Type:

NPN

Voltage - Collector Emitter Breakdown (Max):

160 V

Current - Collector Cutoff (Max):

1 $\mu$ A (ICBO)

Power - Max:

1 W

Operating Temperature:

150°C (TJ)

Package / Case:

TO-252-3, DPAK (2 Leads + Tab), SC-63

Base Product Number:

2SC4027

Manufacturer:

onsemi

Product Status:

Active

Current - Collector (Ic) (Max):

1.5 A

Vce Saturation (Max) @ Ib, Ic:

450mV @ 50mA, 500mA

DC Current Gain (hFE) (Min) @ Ic, Vce:

100 @ 100mA, 5V

Frequency - Transition:

120MHz

Mounting Type:

Surface Mount

Supplier Device Package:

TP-FA

## Environmental & Export classification

RoHS Status:

ROHS3 Compliant

REACH Status:

REACH Unaffected

HTSUS:

8541.29.0075

Moisture Sensitivity Level (MSL):

1 (Unlimited)

ECCN:

EAR99

Ordering number : EN2262F



# 2SA1552/2SC4027

## Bipolar Transistor

(-160V, (-)1.5A, Low  $V_{CE(sat)}$  (PNP)NPN Single TP/TP-FA

ON Semiconductor®

<http://onsemi.com>

### Applications

- Converters, inverters, color TV audio output

### Features

- Adoption of FBET, MBIT processes
- High voltage and large current capacity
- Ultrahigh-speed switching
- Small and slim package permitting 2SA1552 / 2SC4027-applied sets to be made more compact

### Specifications ( ) : 2SA1552

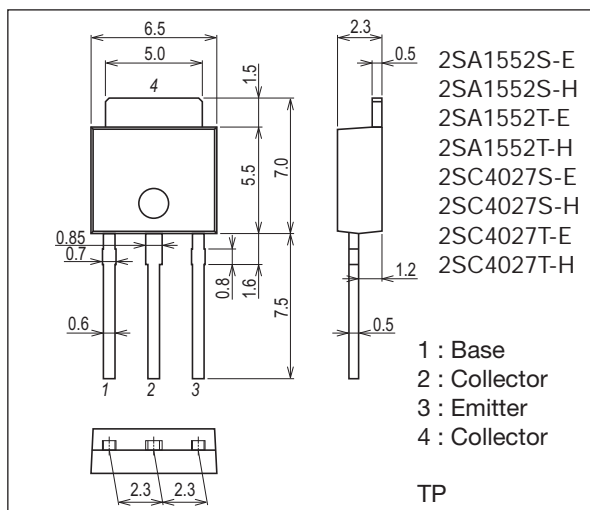
#### Absolute Maximum Ratings at $T_a=25^\circ\text{C}$

Parameter	Symbol	Conditions	Ratings	Unit
Collector to Base Voltage	$V_{CBO}$		(-)180	V
Collector to Emitter Voltage	$V_{CEO}$		(-)160	V
Emitter to Base Voltage	$V_{EBO}$		(-)6	V
Collector Current	$I_C$		(-)1.5	A
Collector Current (Pulse)	$I_{CP}$		(-)2.5	A

Continued on next page.

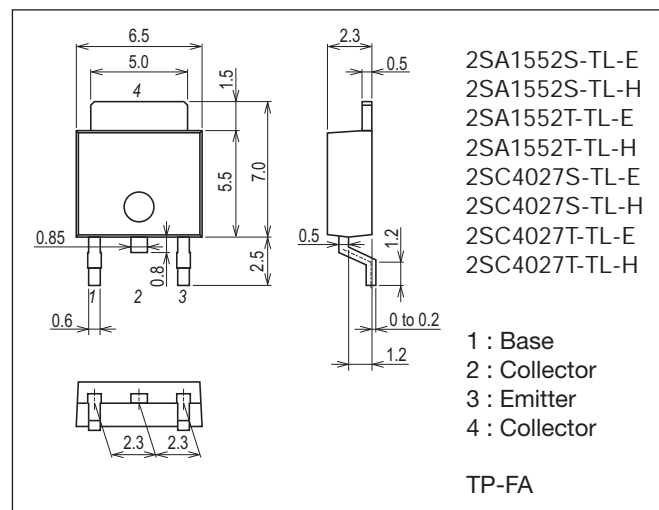
#### Package Dimensions unit : mm (typ)

7518-003



#### Package Dimensions unit : mm (typ)

7003-003



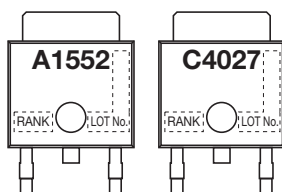
#### Product & Package Information

- Package : TP
- JEITA, JEDEC : SC-64, TO-251
- Minimum Packing Quantity : 500 pcs./bag

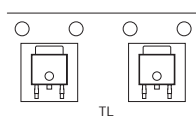
- Package : TP-FA
- JEITA, JEDEC : SC-63, TO-252
- Minimum Packing Quantity : 700 pcs./reel

#### Marking

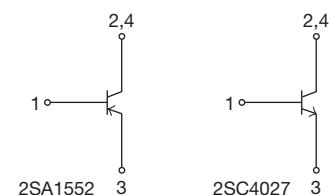
(TP, TP-FA)



#### Packing Type (TP-FA) : TL



#### Electrical Connection



## 2SA1552 / 2SC4027

Continued from preceding page.

Parameter	Symbol	Conditions	Ratings	Unit
Collector Dissipation	P <sub>C</sub>		1	W
		T <sub>C</sub> =25°C	15	W
Junction Temperature	T <sub>J</sub>		150	°C
Storage Temperature	T <sub>stg</sub>		-55 to +150	°C

Stresses exceeding Maximum Ratings may damage the device. Maximum Ratings are stress ratings only. Functional operation above the Recommended Operating Conditions is not implied. Extended exposure to stresses above the Recommended Operating Conditions may affect device reliability.

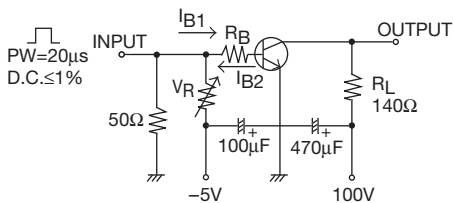
Electrical Characteristics at T<sub>a</sub>=25°C

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Collector Cutoff Current	I <sub>CBO</sub>	V <sub>CB</sub> =(-)120V, I <sub>E</sub> =0A			(-)1.0	μA
Emitter Cutoff Current	I <sub>EBO</sub>	V <sub>EB</sub> =(-)4V, I <sub>C</sub> =0A			(-)1.0	μA
DC Current Gain	h <sub>FE1</sub>	V <sub>CE</sub> =(-)5V, I <sub>C</sub> =(-)100mA	140*		400*	
	h <sub>FE2</sub>	V <sub>CE</sub> =(-)5V, I <sub>C</sub> =(-)10mA	80			
Gain-Bandwidth Product	f <sub>T</sub>	V <sub>CE</sub> =(-)10V, I <sub>C</sub> =(-)50mA		120		MHz
Output Capacitance	C <sub>ob</sub>	V <sub>CB</sub> =(-)10V, f=1MHz		(22)12		pF
Collector to Emitter Saturation Voltage	V <sub>CE(sat)</sub>	I <sub>C</sub> =(-)500mA, I <sub>B</sub> =(-)50mA		(-0.2)0.13	(-0.5)0.45	V
Base to Emitter Saturation Voltage	V <sub>BE(sat)</sub>	I <sub>C</sub> =(-)500mA, I <sub>B</sub> =(-)50mA		(-)0.85	(-)1.2	V
Collector to Base Breakdown Voltage	V <sub>(BR)CBO</sub>	I <sub>C</sub> =(-)10μA, I <sub>E</sub> =0A	(-)180			V
Collector to Emitter Breakdown Voltage	V <sub>(BR)CEO</sub>	I <sub>C</sub> =(-)1mA, R <sub>BE</sub> =∞	(-)160			V
Emitter to Base Breakdown Voltage	V <sub>(BR)EBO</sub>	I <sub>E</sub> =(-)10μA, I <sub>C</sub> =0A	(-)6			V
Turn-On Time	t <sub>on</sub>	See specified Test Circuit.		60		ns
Storage Time	t <sub>stg</sub>			(0.7)1.2		μs
Fall Time	t <sub>f</sub>			(50)80		ns

\* : The 2SA1552 / 2SC4027 are classified by 100mA h<sub>FE</sub> as follows : (unit : μA)

Rank	S	T
h <sub>FE</sub>	140 to 280	200 to 400

## Switching Time Test Circuit



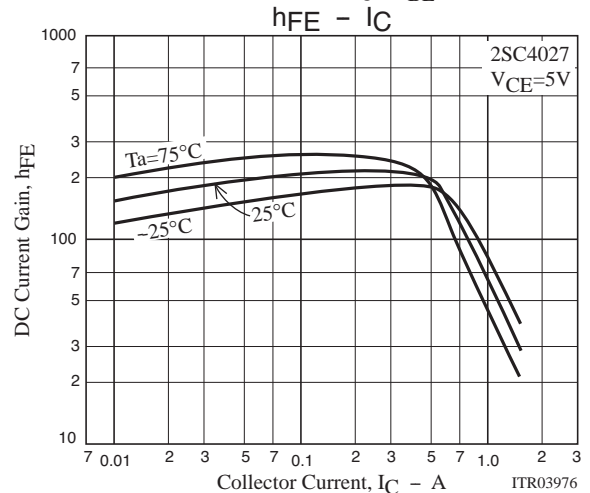
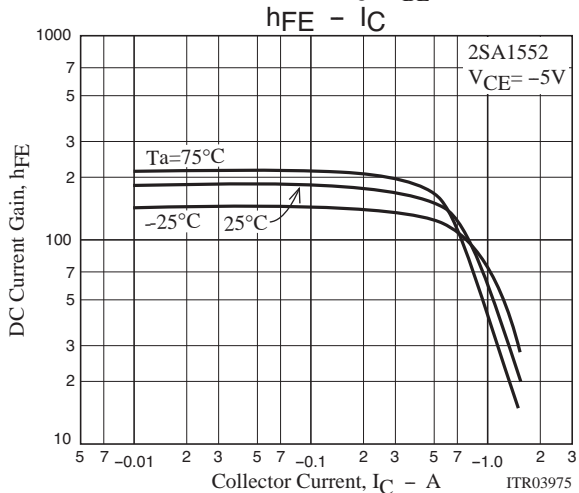
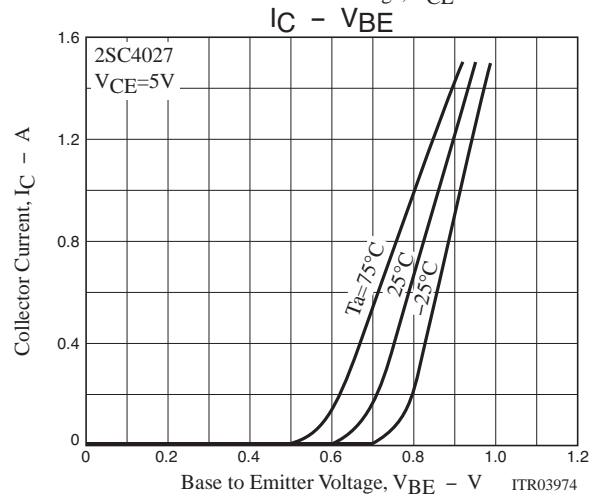
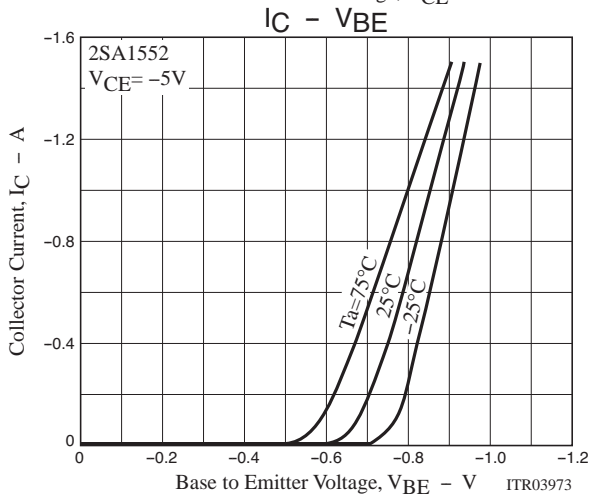
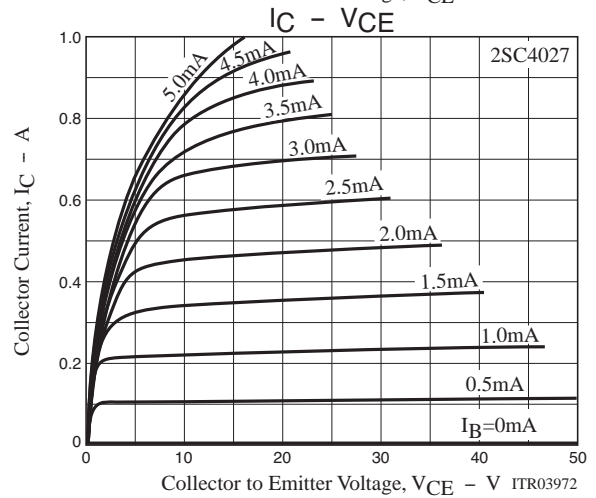
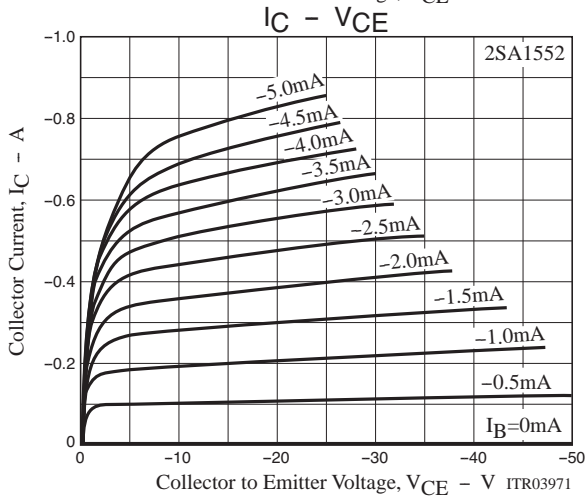
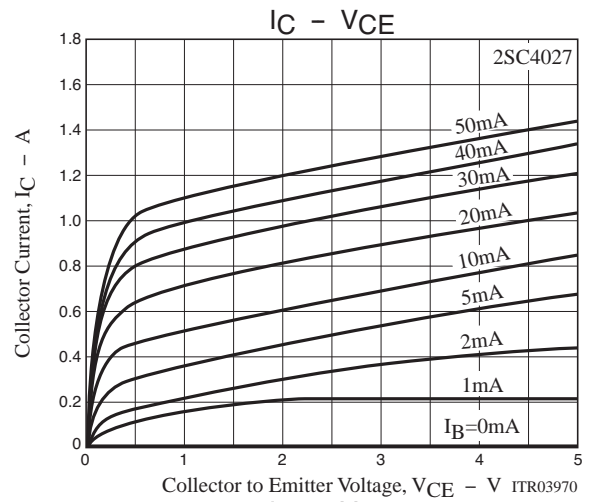
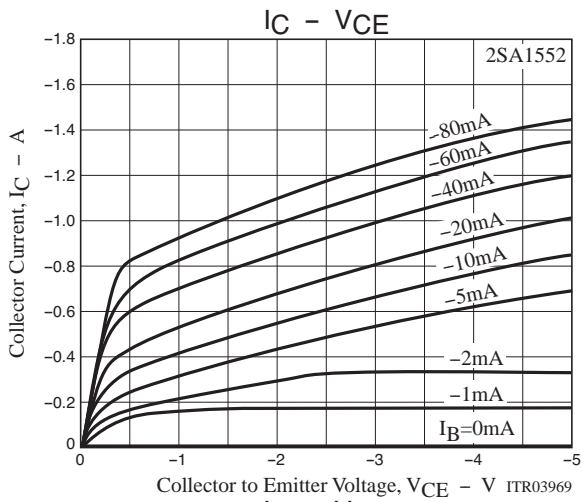
$$10I_{B1} = -10I_{B2} = I_C = 0.7A$$

For PNP, the polarity is reversed.

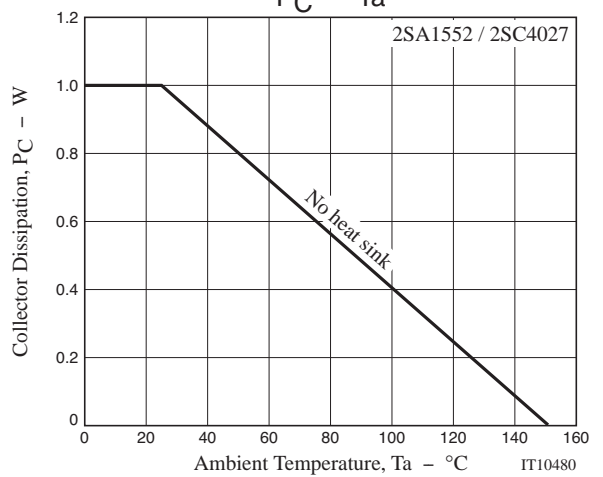
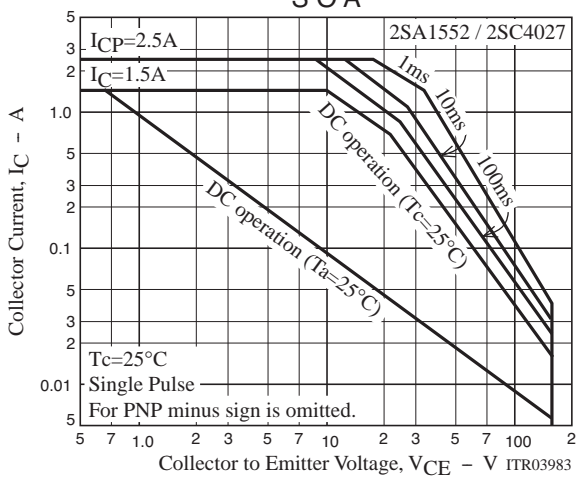
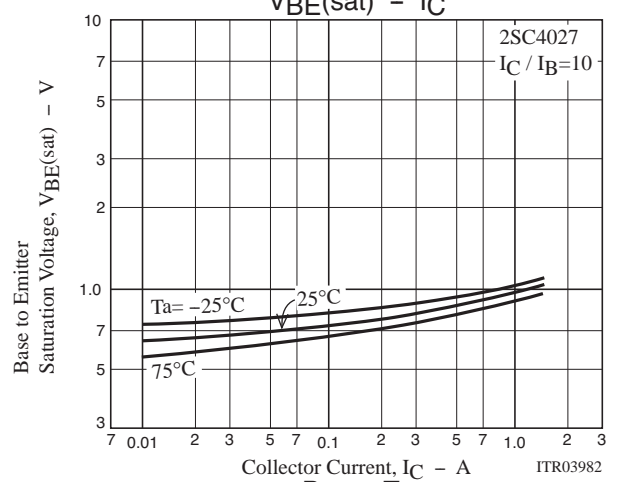
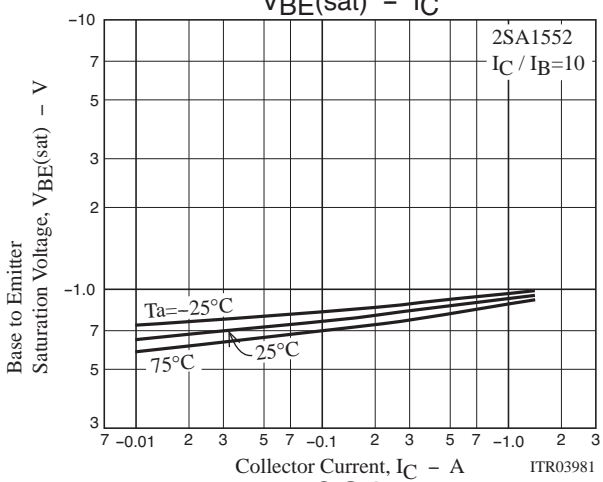
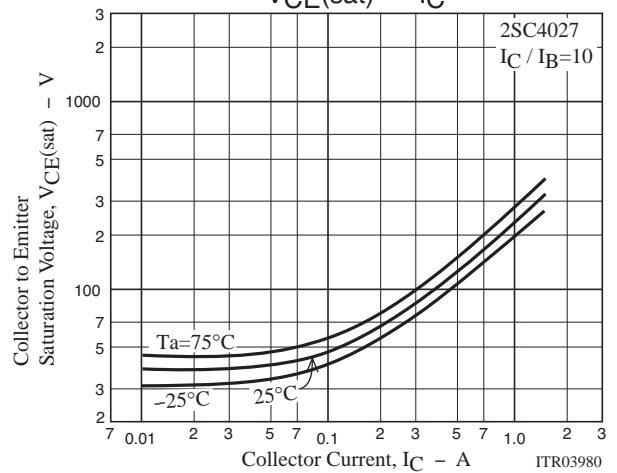
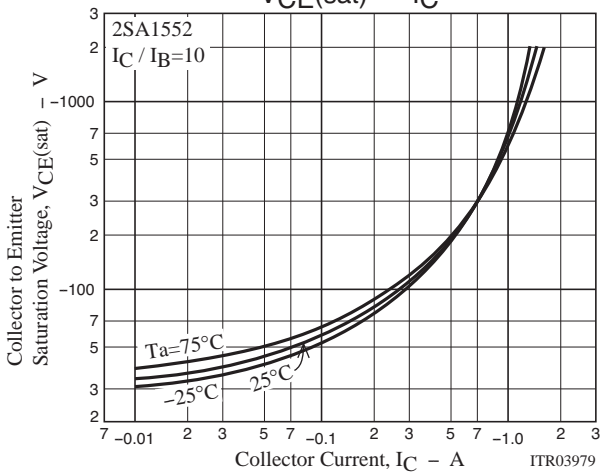
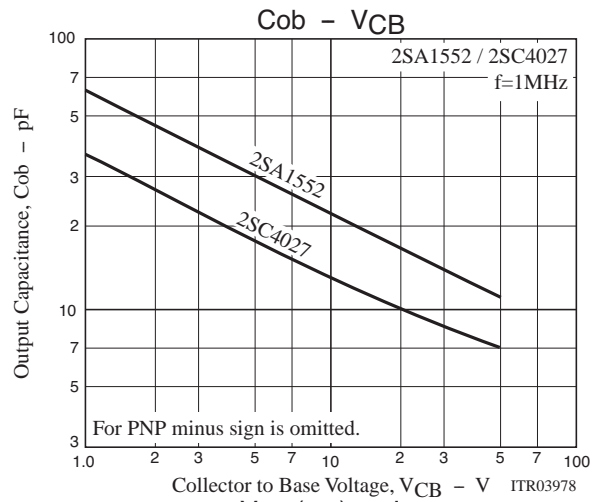
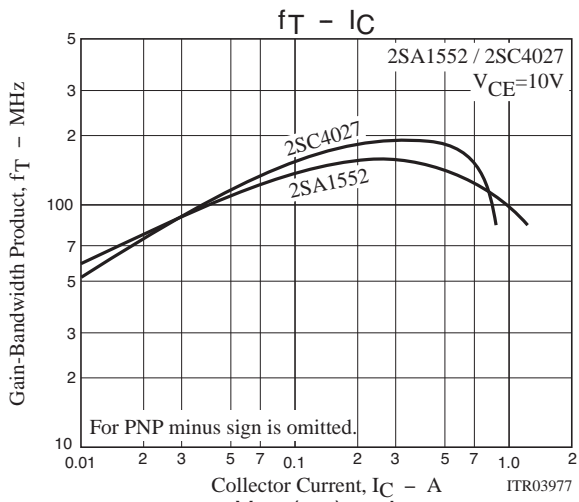
## Ordering Information

Device	Package	Shipping	memo
2SA1552S-E	TP	500pcs./bag	Pb Free
2SA1552S-H	TP	500pcs./bag	Pb Free and Halogen Free
2SA1552T-E	TP	500pcs./bag	Pb Free
2SA1552T-H	TP	500pcs./bag	Pb Free and Halogen Free
2SC4027S-E	TP	500pcs./bag	Pb Free
2SC4027S-H	TP	500pcs./bag	Pb Free and Halogen Free
2SC4027T-E	TP	500pcs./bag	Pb Free
2SC4027T-H	TP	500pcs./bag	Pb Free and Halogen Free
2SA1552S-TL-E	TP-FA	700pcs./reel	Pb Free
2SA1552S-TL-H	TP-FA	700pcs./reel	Pb Free and Halogen Free
2SA1552T-TL-E	TP-FA	700pcs./reel	Pb Free
2SA1552T-TL-H	TP-FA	700pcs./reel	Pb Free and Halogen Free
2SC4027S-TL-E	TP-FA	700pcs./reel	Pb Free
2SC4027S-TL-H	TP-FA	700pcs./reel	Pb Free and Halogen Free
2SC4027T-TL-E	TP-FA	700pcs./reel	Pb Free
2SC4027T-TL-H	TP-FA	700pcs./reel	Pb Free and Halogen Free

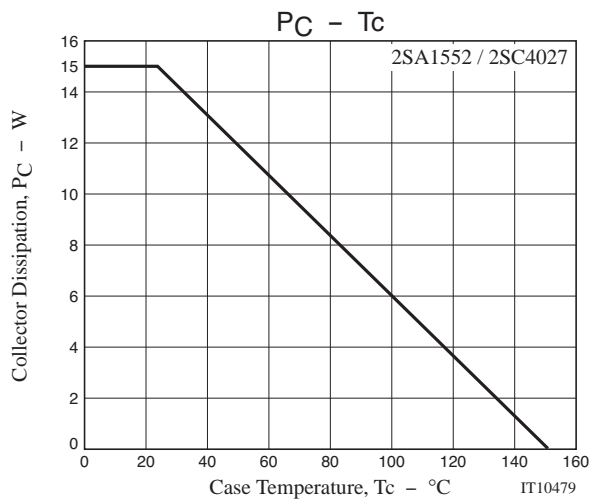
2SA1552 / 2SC4027



2SA1552 / 2SC4027



### 2SA1552 / 2SC4027

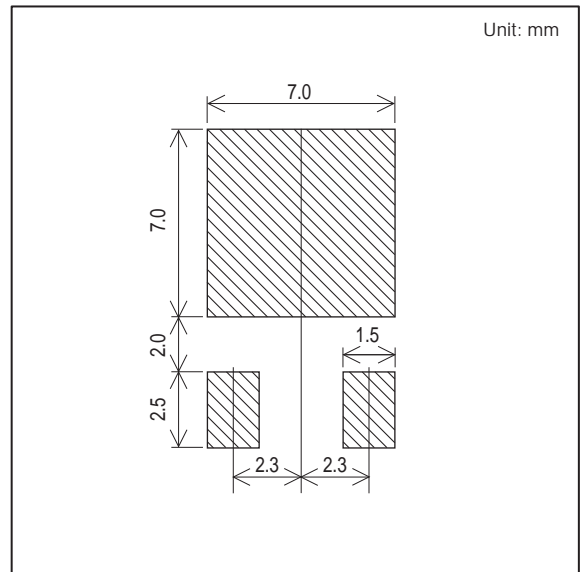
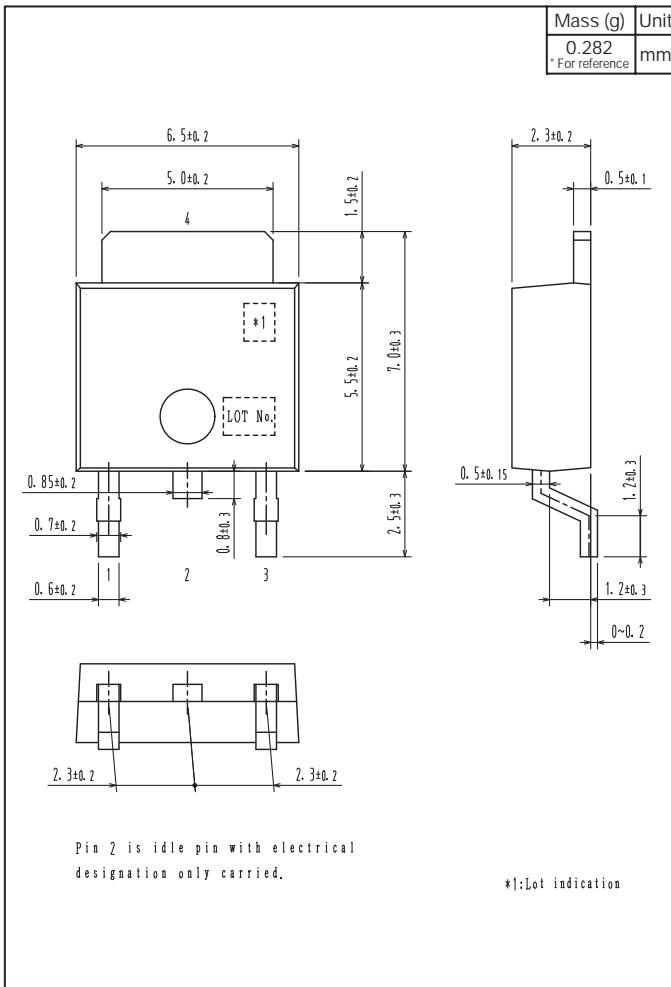


2SA1552 / 2SC4027

Outline Drawing

Land Pattern Example

2SA1552S-TL-E, 2SA1552S-TL-H, 2SA1552T-TL-E, 2SA1552T-TL-H, 2SC4027S-TL-E, 2SC4027S-TL-H, 2SC4027T-TL-E, 2SC4027T-TL-H

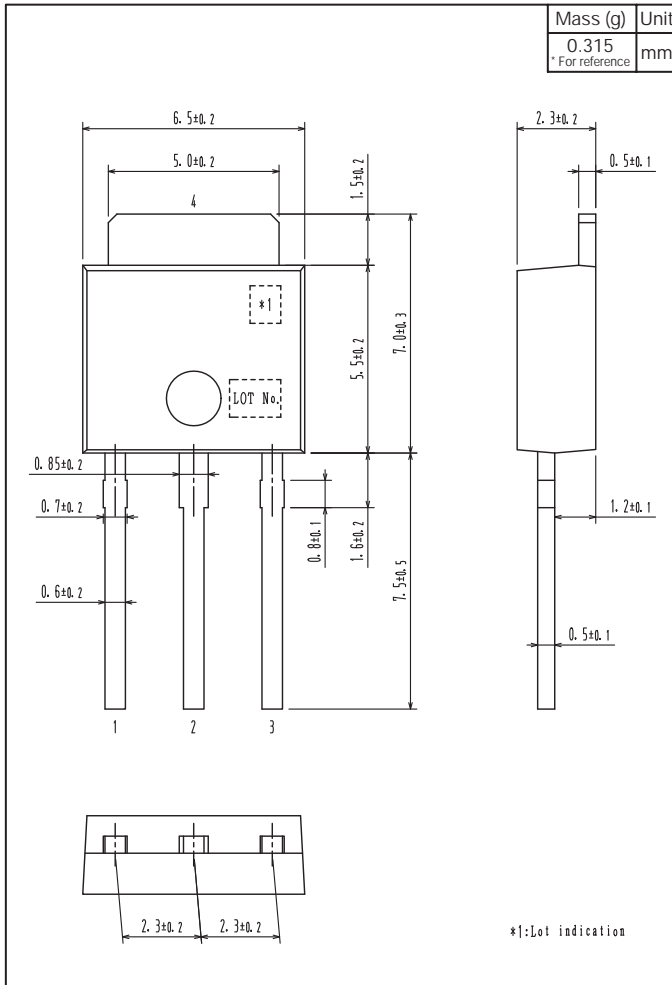




## 2SA1552 / 2SC4027

## Outline Drawing

2SA1552S-E, 2SA1552S-H, 2SA1552T-E, 2SA1552T-H, 2SC4027S-E, 2SC4027S-H, 2SC4027T-E, 2SC4027T-H



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