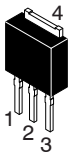
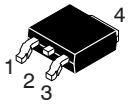
Bipolar Transistor

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

2SA1552, 2SC4027



1: Base
2: Collector
3: Emitter
4: Collector



IPAK/TP
CASE 369AJ

DPAK-3/TO-252-3
CASE 369AH

Features

- Adoption of FBET and 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

Applications

- Converters, Inverters, Color TV Audio Output

Specifications

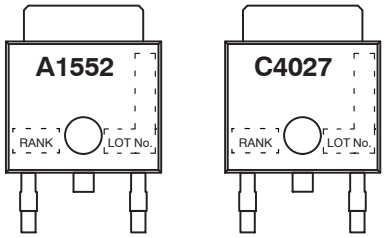
( ): 2SA1552

ABSOLUTE MAXIMUM RATINGS (Ta = 25 °C)

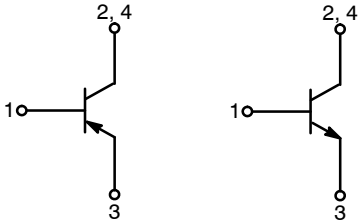
Parameter	Symbol	Conditions	Ratings	Unit
Collector to Base Voltage	V_{CBO}		(–)180	V
Collector to Emitter Voltage	V_{CEO}		(–)160	V
Emitter to Base Voltage	V_{EBO}		(–)6	V
Collector Current	I_C		(–)1.5	A
Collector Current (Pulse)	I_{CP}		(–)2.5	A
Collector Dissipation	P_C		1	W
		Tc = 25 °C	15	
Junction Temperature	Tj		150	°C
Storage Temperature	Tstg		–55 to +150	°C

Stresses exceeding those listed in the Maximum Ratings table may damage the device. If any of these limits are exceeded, device functionality should not be assumed, damage may occur and reliability may be affected.

MARKING DIAGRAMS



ELECTRICAL CONNECTION



2SA1552 2SC4027

ORDERING INFORMATION

See detailed ordering, marking and shipping information on page 6 of this data sheet.

NOTE: Some of the devices on this data sheet have been **DISCONTINUED**. Please refer to the table on page 6.

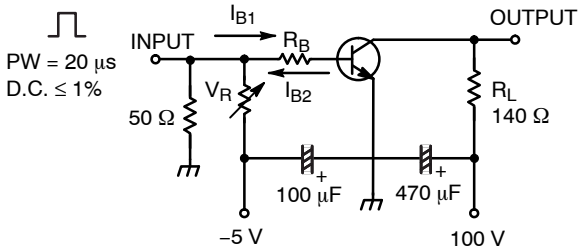
ELECTRICAL CHARACTERISTICS (Ta = 25 °C)

Parameter	Symbol	Conditions	Ratings			Unit
			Min	Typ	Max	
Collector Cutoff Current	I_{CBO}	V_{CB} = (−)120 V, I_E = 0 A	−	−	(−)1.0	μA
Emitter Cutoff Current	I_{EBO}	V_{EB} = (−)4 V, I_C = 0 A	−	−	(−)1.0	μA
DC Current Gain	$h_{FE}1$	V_{CE} = (−)5 V, I_C = (−)100 mA	140 (Note 1)	−	400 (Note 1)	
	$h_{FE}2$	V_{CE} = (−)5 V, I_C = (−)10 mA	80	−	−	
Gain-Bandwidth Product	f_T	V_{CE} = (−)10 V, I_C = (−)50 mA	−	120	−	MHz
Output Capacitance	Cob	V_{CB} = (−)10 V, f = 1 MHz	−	(22)12	−	pF
Collector to Emitter Saturation Voltage	V_{CE}(sat)	I_C = (−)500 mA, I_B = (−)50 mA	−	(−0.2)0.13	(−0.5)0.45	V
Base to Emitter Saturation Voltage	V_{BE}(sat)	I_C = (−)500 mA, I_B = (−)50 mA		(−)0.85	(−)1.2	V
Collector to Base Breakdown Voltage	$V_{(BR)CBO}$	I_C = (−)10 μA, I_E = 0 A	(−)180	−	−	V
Collector to Emitter Breakdown Voltage	$V_{(BR)CEO}$	I_C = (−)1 mA, R_{BE} = ∞	(−)160	−	−	V
Emitter to Base Breakdown Voltage	$V_{(BR)EBO}$	I_E = (−)10 μA, I_C = 0 A	(−)6	−	−	V
Turn-On Time	t_{on}	See specified Test Circuit	−	60	−	ns
Storage Time	t_{stg}		−	(0.7)1.2	−	μs
Fall Time	t_f		−	(50)80	−	ns

Product parametric performance is indicated in the Electrical Characteristics for the listed test conditions, unless otherwise noted. Product performance may not be indicated by the Electrical Characteristics if operated under different conditions.

1. The 2SA1552 / 2SC4027 are classified by 100 mA h_{FE} as follows: (unit: μA)

Rank	S	T
h_{FE}	140 to 280	200 to 400



$10I_{B1} = -10I_{B2} = I_C = 0.7$ A
For PNP, the polarity is reversed.

Figure 1. Switching Time Test Circuit

TYPICAL CHARACTERISTICS

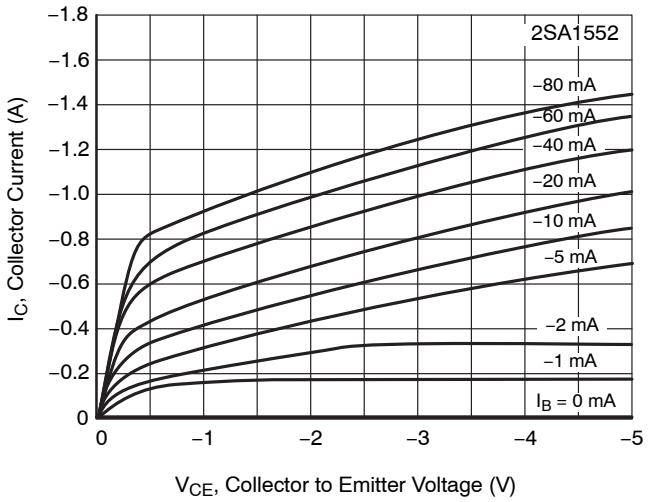


Figure 2. I_C – V_{CE}

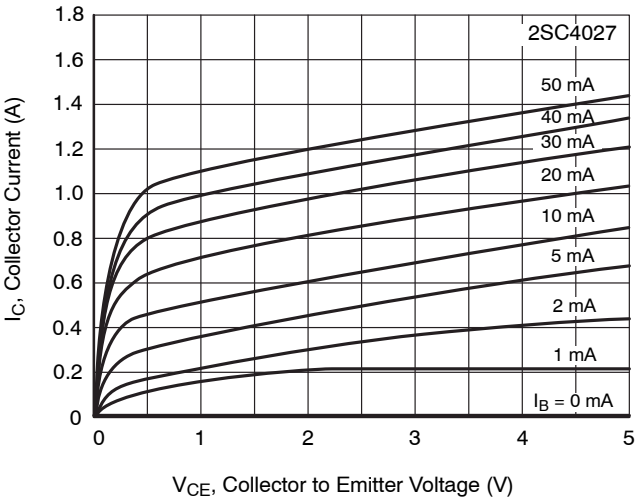


Figure 3. I_C – V_{CE}

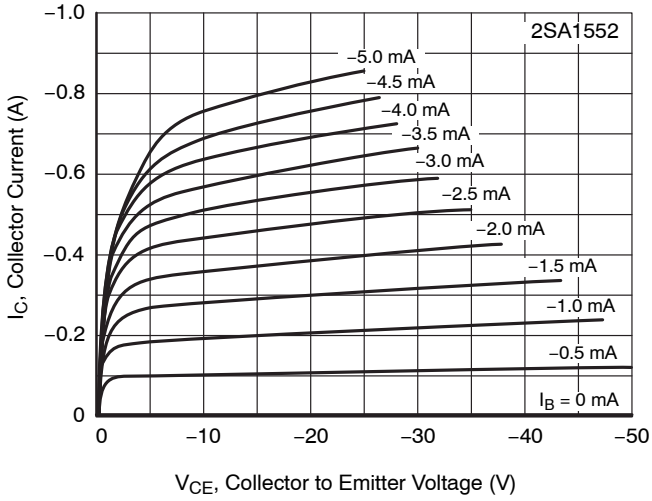


Figure 4. I_C – V_{CE}

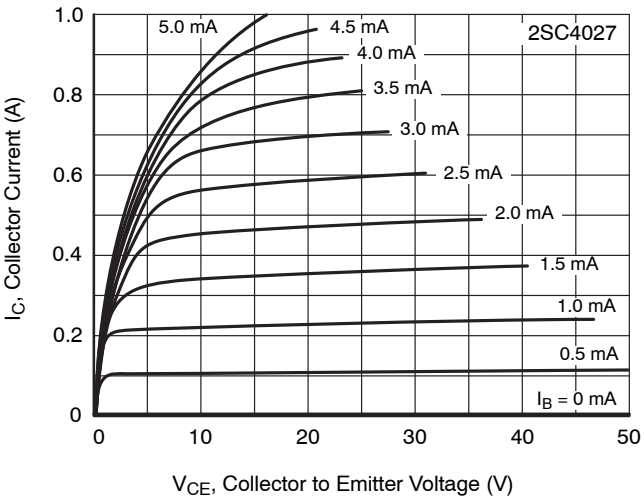


Figure 5. I_C – V_{CE}

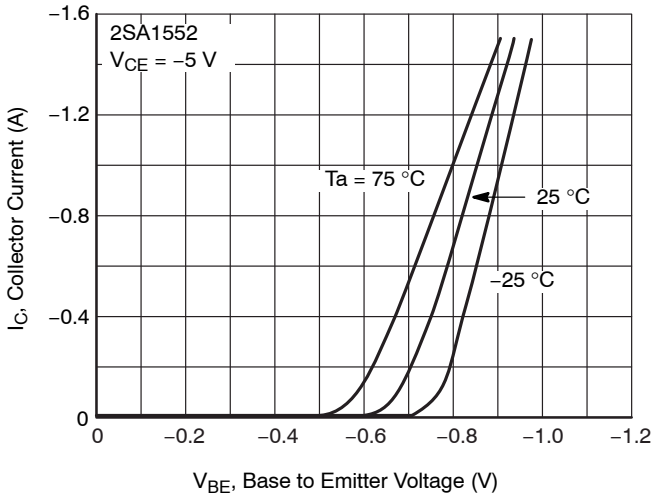


Figure 6. I_C – V_{BE}

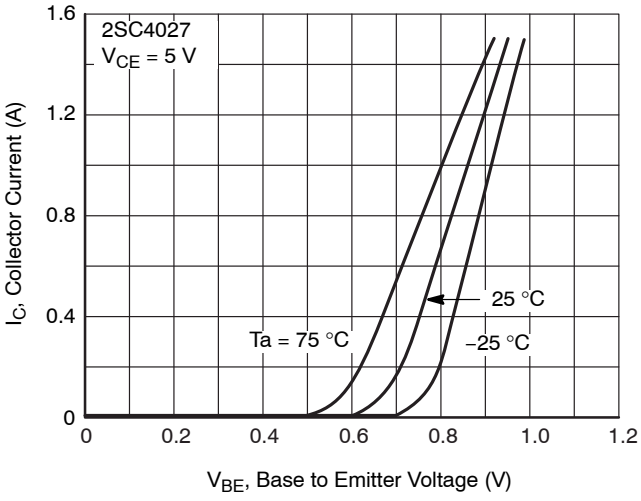


Figure 7. I_C – V_{BE}

TYPICAL CHARACTERISTICS

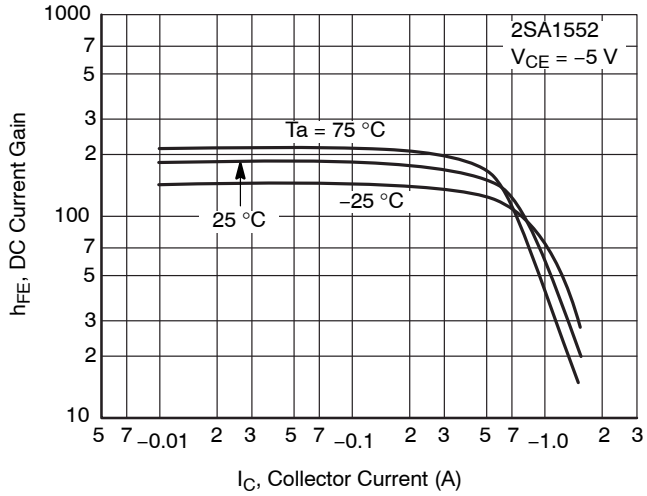


Figure 8. h_{FE} – I_C

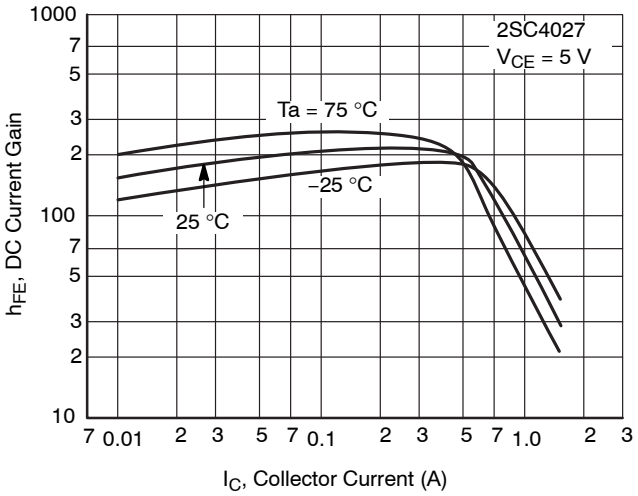


Figure 9. h_{FE} – I_C

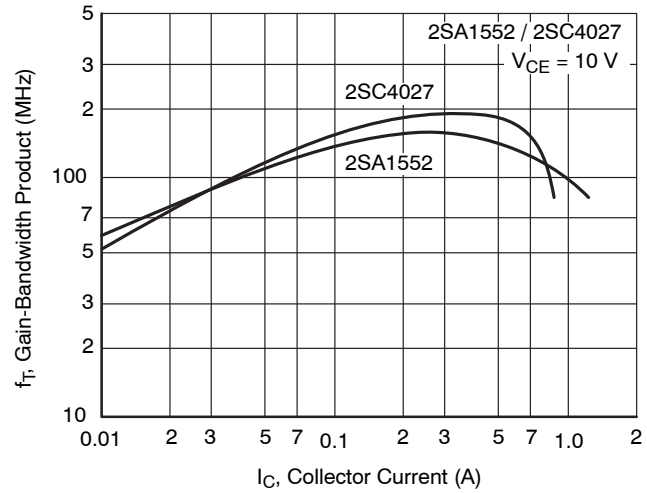


Figure 10. f_T – I_C

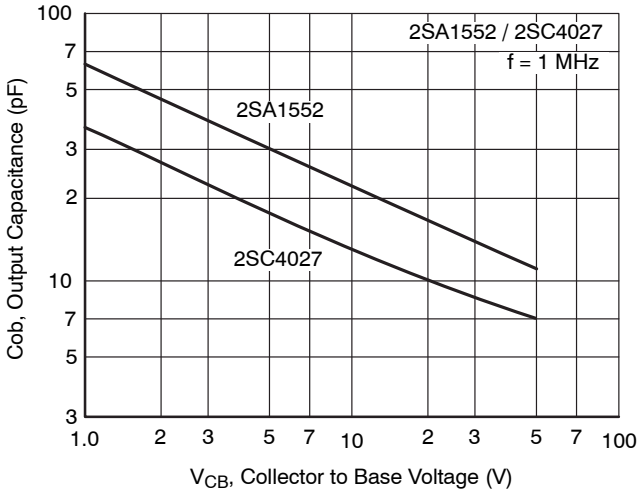


Figure 11. Cob – V_{CB}

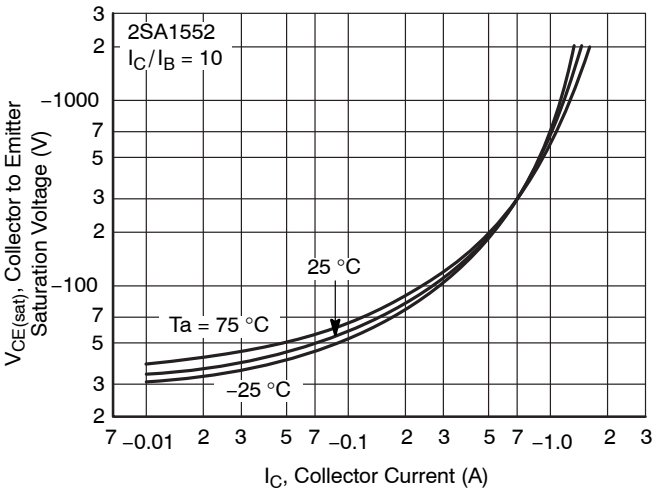


Figure 12. $V_{CE(sat)}$ – I_C

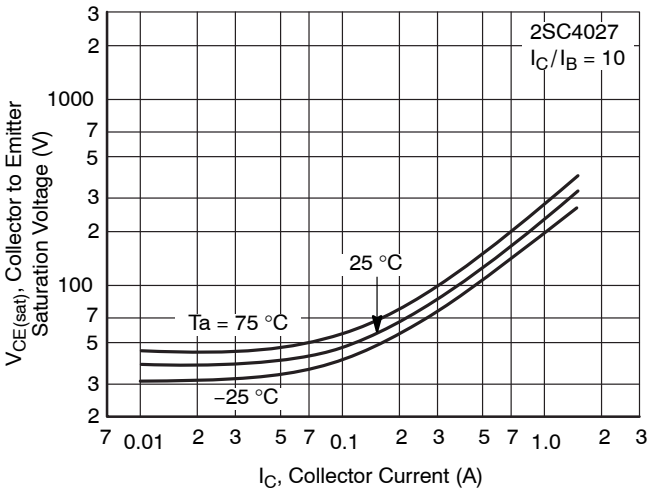


Figure 13. $V_{CE(sat)}$ – I_C

TYPICAL CHARACTERISTICS

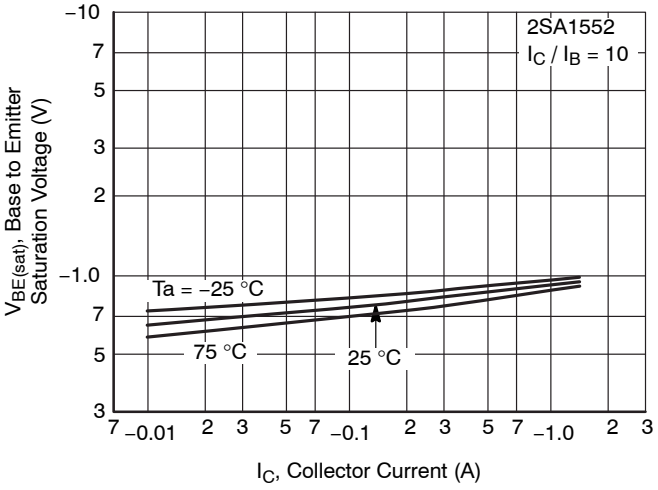


Figure 14. $V_{BE(sat)}$ − I_C

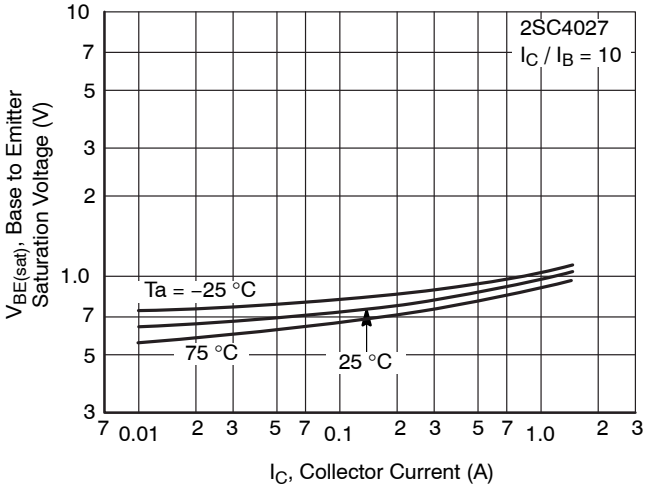


Figure 15. $V_{BE(sat)}$ − I_C

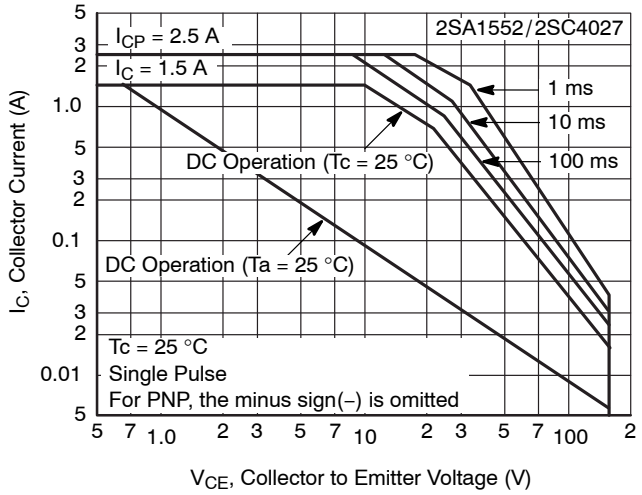


Figure 16. SOA

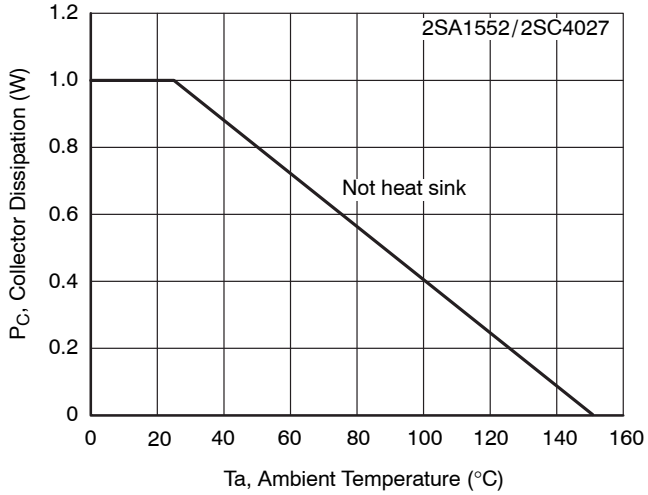


Figure 17. P_C – Ta

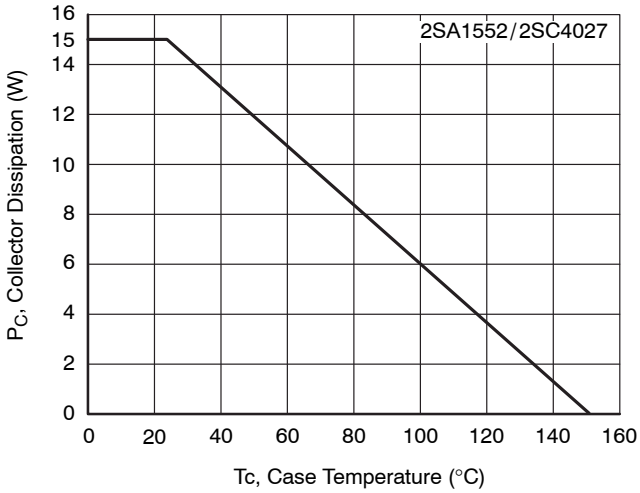


Figure 18. P_C – Tc

ORDERING INFORMATION

Device	Package	Shipping†
2SA1552S-TL-H	DPAK-3 / TO-252-3 (Pb-Free and Halogen Free)	700 / Tape & Reel
2SC4027S-TL-E	DPAK-3 / TO-252-3 (Pb-Free)	700 / Tape & Reel
2SC4027S-TL-H	DPAK-3 / TO-252-3 (Pb-Free and Halogen Free)	700 / Tape & Reel
2SC4027T-TL-E	DPAK-3 / TO-252-3 (Pb-Free)	700 / Tape & Reel

DISCONTINUED (Note 2)

2SA1552S-E	IPAK / TP (Pb-Free)	500 Units / Bulk
2SA1552S-H	IPAK / TP (Pb-Free and Halogen Free)	500 Units / Bulk
2SA1552T-E	IPAK / TP (Pb-Free)	500 Units / Bulk
2SA1552T-H	IPAK / TP (Pb-Free and Halogen Free)	500 Units / Bulk
2SC4027S-E	IPAK / TP (Pb-Free)	500 Units / Bulk
2SC4027S-H	IPAK / TP (Pb-Free and Halogen Free)	500 Units / Bulk
2SC4027T-E	IPAK / TP (Pb-Free)	500 Units / Bulk
2SC4027T-H	IPAK / TP (Pb-Free and Halogen Free)	500 Units / Bulk
2SA1552S-TL-E	DPAK-3 / TO-252-3 (Pb-Free)	700 / Tape & Reel
2SA1552T-TL-E	DPAK-3 / TO-252-3 (Pb-Free)	700 / Tape & Reel
2SA1552T-TL-H	DPAK-3 / TO-252-3 (Pb-Free and Halogen Free)	700 / Tape & Reel
2SC4027T-TL-H	DPAK-3 / TO-252-3 (Pb-Free and Halogen Free)	700 / Tape & Reel

†For information on tape and reel specifications, including part orientation and tape sizes, please refer to our Tape and Reel Packaging Specifications Brochure, BRD8011/D.

2. **DISCONTINUED:** These devices are not available. Please contact your **onsemi** representative for information. The most current information on these devices may be available on www.onsemi.com.

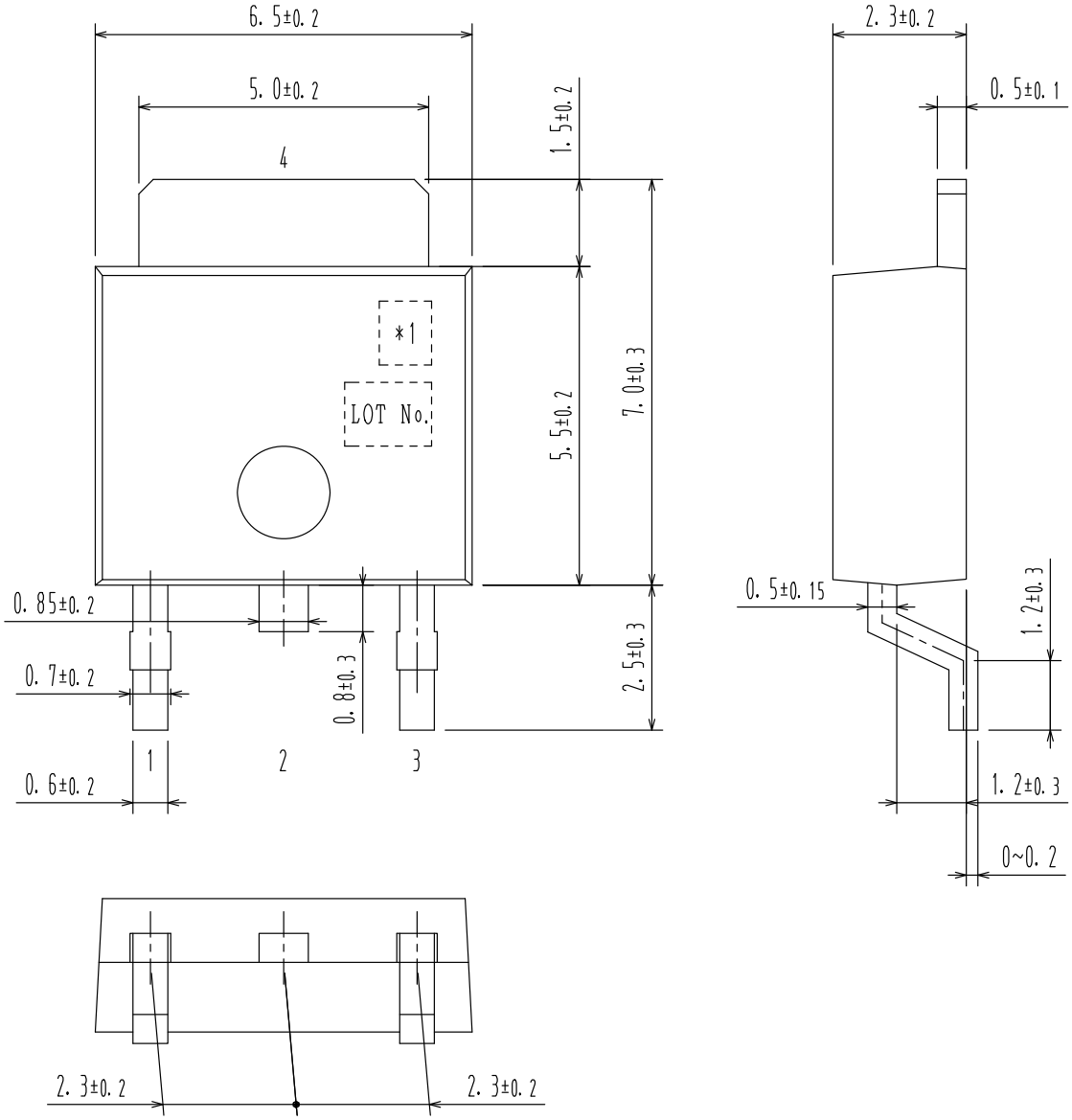
REVISION HISTORY

Revision	Description of Changes	Date
2	Document converted to **onsemi** format.	3/17/2025
3	2SA1552S-TL-E OPN marked as Discontinued.	11/7/2025

This document has undergone updates prior to the inclusion of this revision history table. The changes tracked here only reflect updates made on the noted approval dates.

DPAK / TP−FA
CASE 369AH
ISSUE O

DATE 30 JAN 2012



Pin 2 is idle pin with electrical designation only carried.

*1:Lot indication

1:
2:
3:
4:

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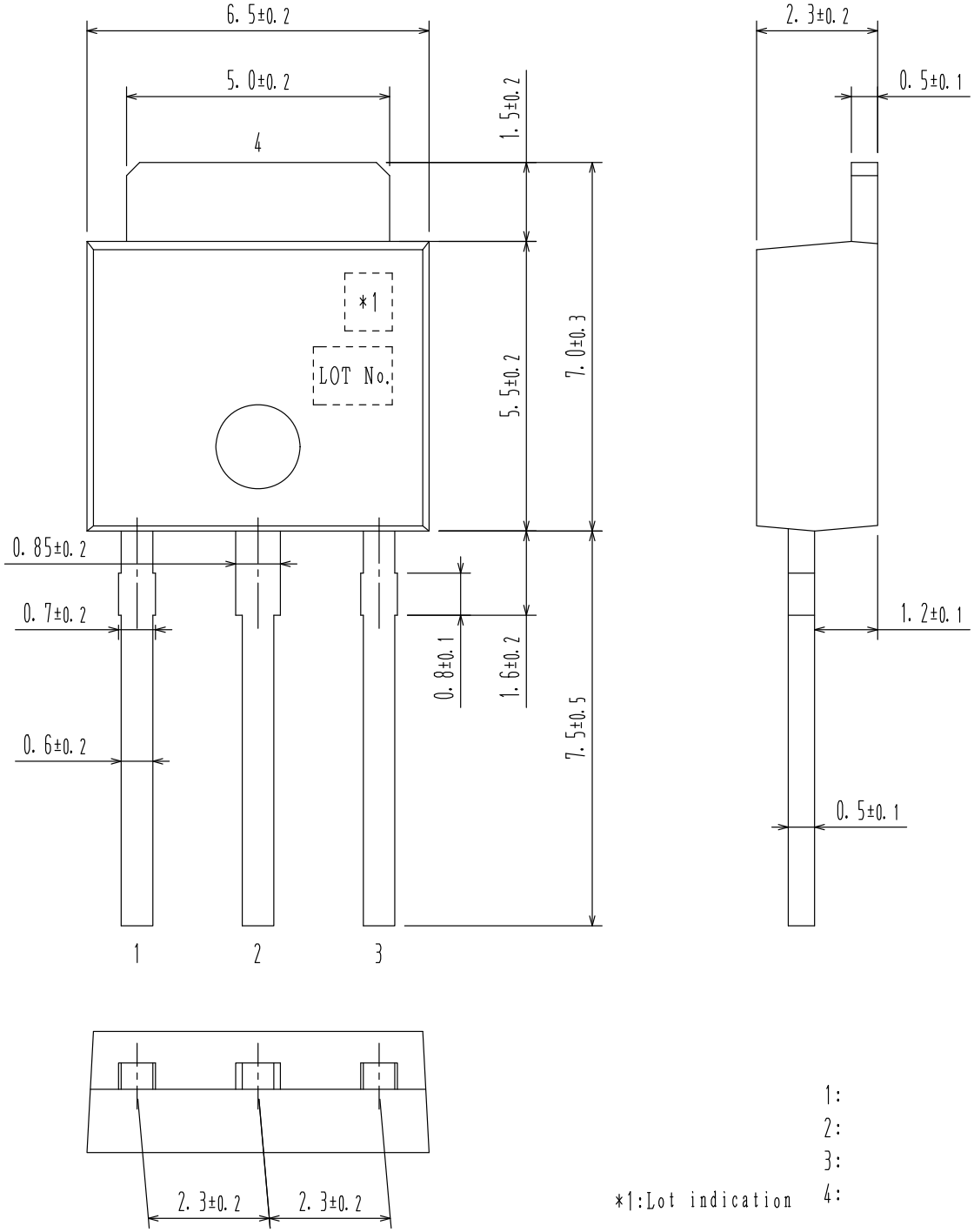
IPAK / TP
CASE 369AJ
ISSUE O

DATE 30 JAN 2012



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