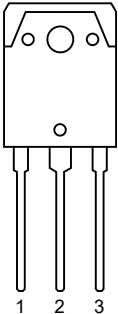



Symbol	Parameter	Conditions	Min	Typ	Max	Unit
Static characteristics						
I <sub>GT</sub>	gate trigger current	V <sub>D</sub> = 12 V; I <sub>T</sub> = 0.1 A; T <sub>j</sub> = 25 °C; Fig. 7; Fig. 8	-	-	50	mA
Dynamic characteristics						
dV <sub>D</sub> /dt	rate of rise of off-state voltage	V <sub>DM</sub> = 800 V; T <sub>j</sub> = 125 °C; R <sub>GK</sub> = 100 Ω; (V <sub>DM</sub> = 67% of V <sub>DRM</sub> ); exponential waveform	1500	-	-	V/μs

## 5. Pinning information

Table 2. Pinning information

Pin	Symbol	Description	Simplified outline	Graphic symbol
1	K	cathod		
2	A	anode		
3	G	gate		
mb	mb	mounting base; connected to anode		
			TO3P (SOT1259)	

## 6. Ordering information

Table 3. Ordering information

Type number	Package		
	Name	Description	Version
BT155K-1200T	TO3P	Plastic single-ended package; heatsink mounted; 1 mounting hole; 3-lead TO3P	SOT1259

## 7. Marking

Table 4. Marking codes

Type number	Marking code
BT155K-1200T	BT155K-1200T

8. Limiting values

Table 5. Limiting values  
In accordance with the Absolute Maximum Rating System (IEC 60134).

Symbol	Parameter	Conditions	Min	Max	Unit
$V_{DRM}$	repetitive peak off-state voltage		-	1200	V
$V_{RRM}$	repetitive peak reverse voltage		-	1200	V
$I_{T(AV)}$	average on-state current	half sine wave; $T_{mb} \leq 131\text{ }^{\circ}\text{C}$	-	50	A
$I_{T(RMS)}$	RMS on-state current	half sine wave; $T_{mb} \leq 131\text{ }^{\circ}\text{C}$ ; Fig. 1; Fig. 2; Fig. 3	-	79	A
$I_{TSM}$	non-repetitive peak on-state current	half sine wave; $T_{j(\text{init})} = 25\text{ }^{\circ}\text{C}$ ; $t_p = 10\text{ ms}$ ; Fig. 4; Fig. 5	-	650	A
		half sine wave; $T_{j(\text{init})} = 25\text{ }^{\circ}\text{C}$ ; $t_p = 8.3\text{ ms}$	-	715	A
$I^2t$	$I^2t$ for fusing	$t_p = 10\text{ ms}$ ; sine-wave pulse	-	2113	$\text{A}^2\text{s}$
$di_T/dt$	rate of rise of on-state current	$I_G = 200\text{ mA}$	-	150	$\text{A}/\mu\text{s}$
$I_{GM}$	peak gate current		-	8	A
$V_{RGM}$	peak reverse gate voltage		-	5	V
$P_{GM}$	peak gate power		-	20	W
$P_{G(AV)}$	average gate power	over any 20 ms period	-	1	W
$T_{stg}$	storage temperature		-40	150	$^{\circ}\text{C}$
$T_j$	junction temperature		-	150	$^{\circ}\text{C}$

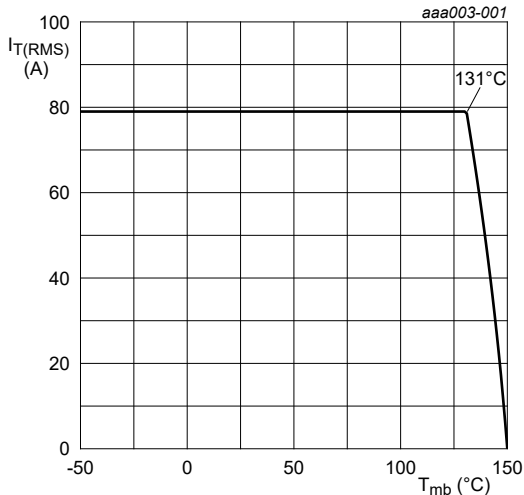
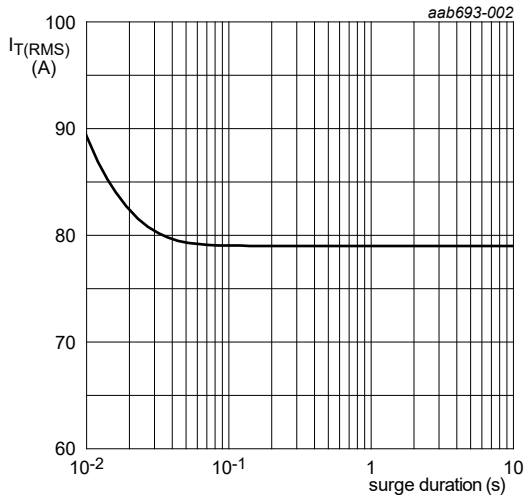
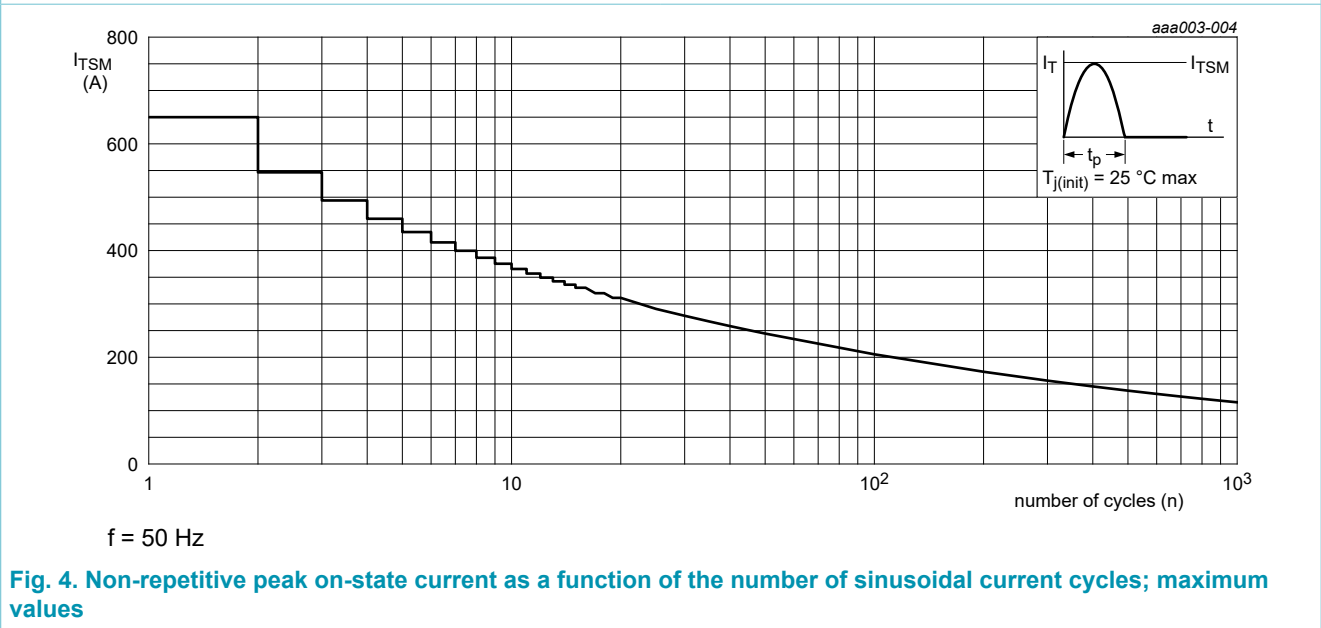
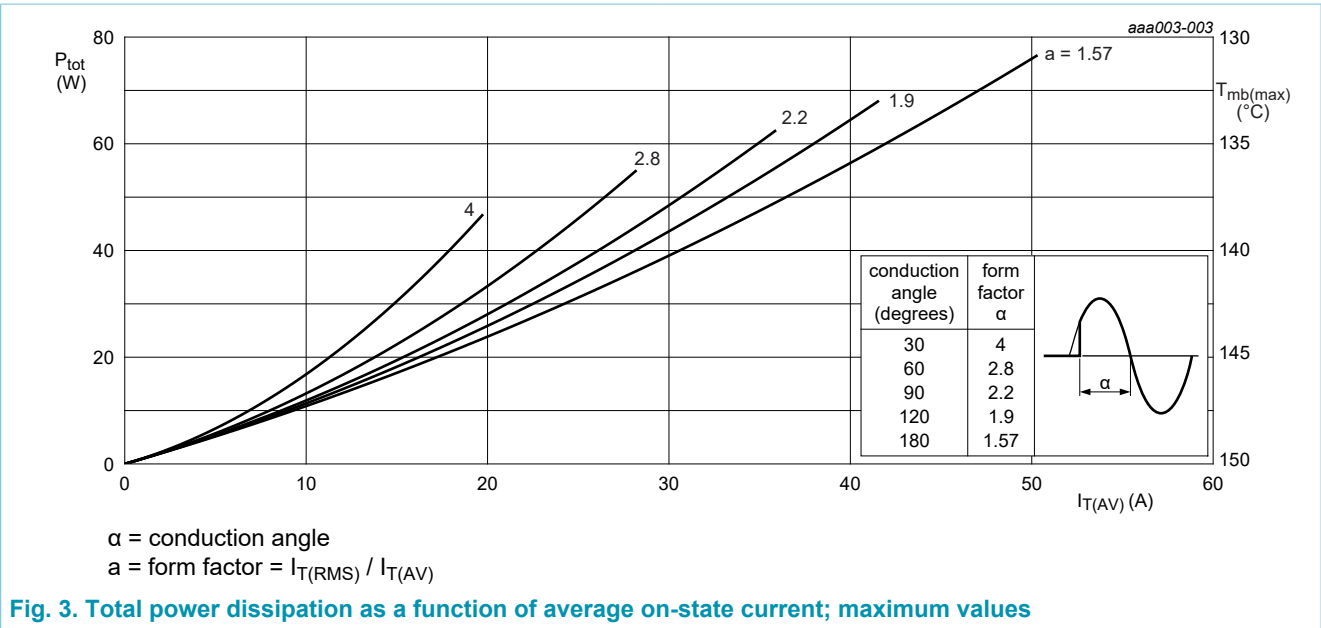


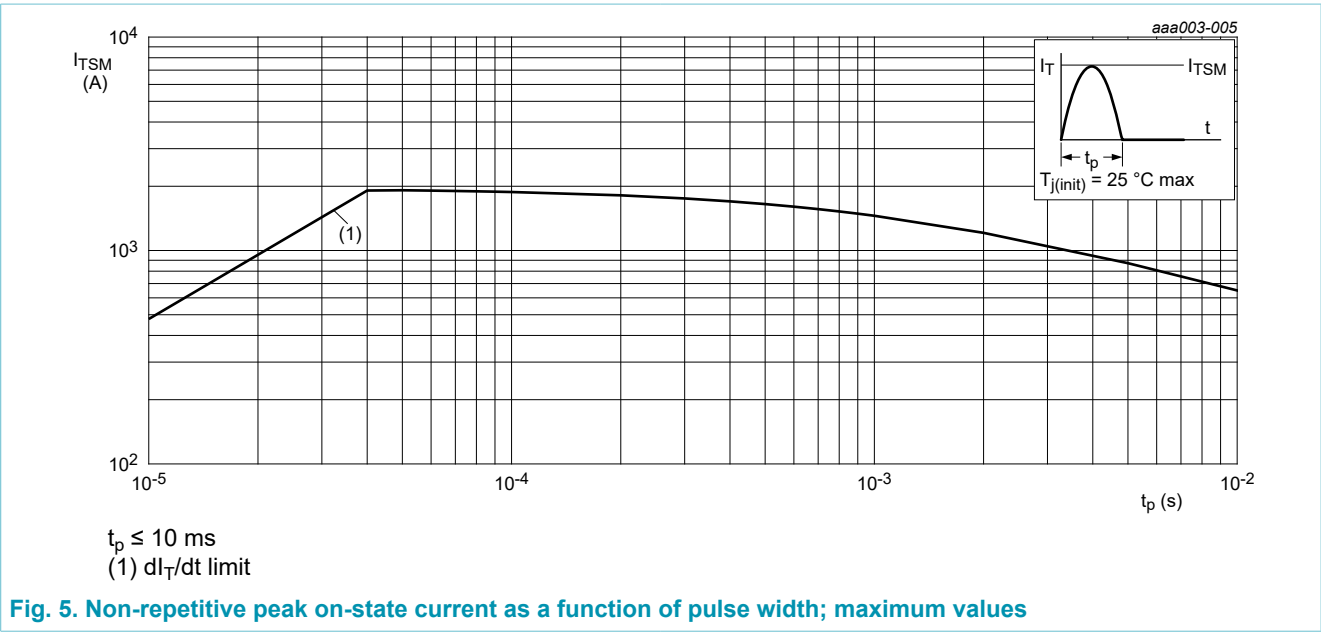
Fig. 1. RMS on-state current as a function of mounting base temperature; maximum values



$f = 50\text{ Hz}$ ;  $T_{mb} = 131\text{ }^{\circ}\text{C}$

Fig. 2. RMS on-state current as a function of surge duration; maximum values

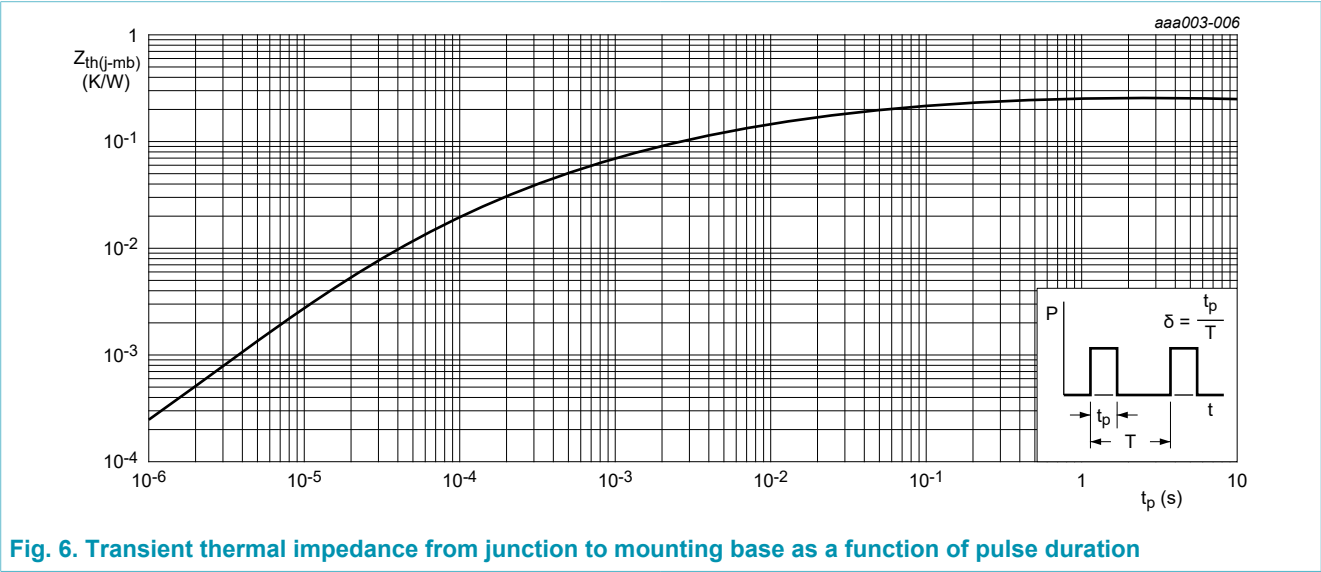




9. Thermal characteristics

Table 6. Thermal characteristics

Symbol	Parameter	Conditions	Min	Typ	Max	Unit
$R_{th(j-mb)}$	thermal resistance from junction to mounting base	full cycle; Fig. 6	-	-	0.25	K/W
$R_{th(j-a)}$	thermal resistance from junction to ambient free air	in free air	-	50	-	K/W



## 10. Characteristics

Table 7. Characteristics

Symbol	Parameter	Conditions	Min	Typ	Max	Unit
<b>Static characteristics</b>						
$I_{GT}$	gate trigger current	$V_D = 12\text{ V}$ ; $I_T = 0.1\text{ A}$ ; $T_j = 25\text{ }^\circ\text{C}$ ; <a href="#">Fig. 7</a> ; <a href="#">Fig. 8</a>	-	-	50	mA
$I_L$	latching current	$V_D = 12\text{ V}$ ; $I_G = 0.1\text{ A}$ ; $T_j = 25\text{ }^\circ\text{C}$ ; <a href="#">Fig. 9</a>	-	-	300	mA
$I_H$	holding current	$V_D = 12\text{ V}$ ; $T_j = 25\text{ }^\circ\text{C}$ ; <a href="#">Fig. 10</a>	-	-	200	mA
$V_T$	on-state voltage	$I_T = 50\text{ A}$ ; $T_j = 25\text{ }^\circ\text{C}$ ; <a href="#">Fig. 11</a>	-	-	1.3	V
		$I_T = 90\text{ A}$ ; $T_j = 25\text{ }^\circ\text{C}$ ; <a href="#">Fig. 11</a>	-	-	1.5	V
$V_{GT}$	gate trigger voltage	$V_D = 12\text{ V}$ ; $I_T = 0.1\text{ A}$ ; $T_j = 25\text{ }^\circ\text{C}$ ; <a href="#">Fig. 12</a>	-	0.7	1	V
		$V_D = 800\text{ V}$ ; $I_T = 0.1\text{ A}$ ; $T_j = 125\text{ }^\circ\text{C}$ ; <a href="#">Fig. 12</a>	0.25	0.4	-	V
$I_D$	off-state current	$V_D = 1200\text{ V}$ ; $T_j = 125\text{ }^\circ\text{C}$	-	-	3	mA
$I_R$	reverse current	$V_R = 1200\text{ V}$ ; $T_j = 125\text{ }^\circ\text{C}$	-	-	3	mA
<b>Dynamic characteristics</b>						
$dV_D/dt$	rate of rise of off-state voltage	$V_{DM} = 800\text{ V}$ ; $T_j = 125\text{ }^\circ\text{C}$ ; $R_{GK} = 100\text{ }\Omega$ ; ( $V_{DM} = 67\%$ of $V_{DRM}$ ); exponential waveform	1500	-	-	V/ $\mu\text{s}$
		$V_{DM} = 800\text{ V}$ ; $T_j = 150\text{ }^\circ\text{C}$ ; $R_{GK} = 100\text{ }\Omega$ ; ( $V_{DM} = 67\%$ of $V_{DRM}$ ); exponential waveform	1000	-	-	V/ $\mu\text{s}$
$t_{gt}$	gate-controlled turn-on time	$I_{TM} = 40\text{ A}$ ; $V_D = 800\text{ V}$ ; $I_G = 0.1\text{ A}$ ; $dI_G/dt = 5\text{ A}/\mu\text{s}$ ; $T_j = 25\text{ }^\circ\text{C}$	-	2	-	$\mu\text{s}$
$t_q$	commutated turn-off time	$V_{DM} = 804\text{ V}$ ; $T_j = 125\text{ }^\circ\text{C}$ ; $I_{TM} = 20\text{ A}$ ; $V_R = 25\text{ V}$ ; $(dI_T/dt)_M = 30\text{ A}/\mu\text{s}$ ; $dV_D/dt = 50\text{ V}/\mu\text{s}$ ; $R_{GK(ext)} = 100\text{ k}\Omega$ ; ( $V_{DM} = 67\%$ of $V_{DRM}$ )	-	150	-	$\mu\text{s}$

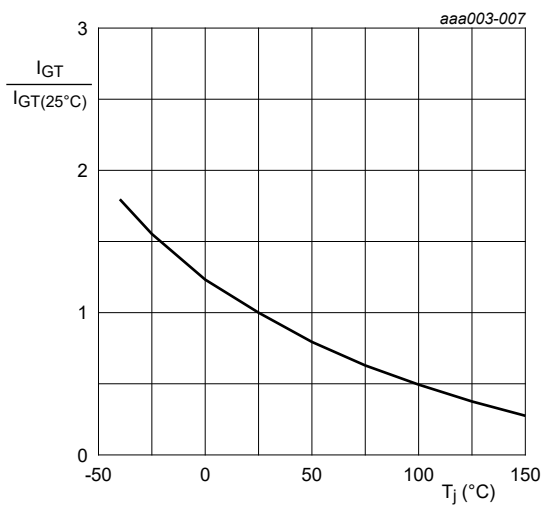


Fig. 7. Normalized gate trigger current as a function of junction temperature

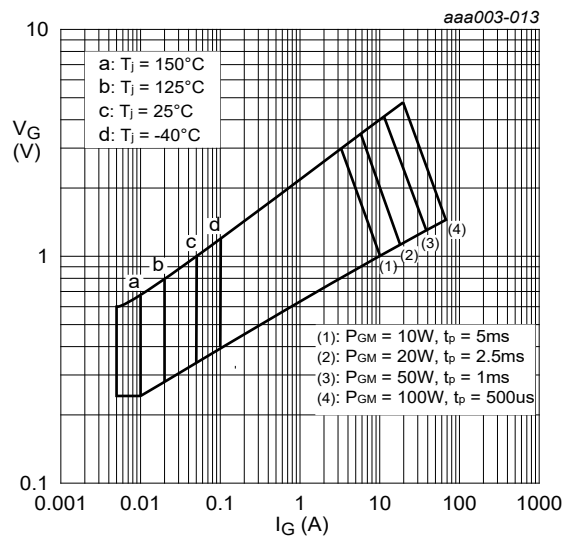


Fig. 8. Gate voltage as a function of gate current

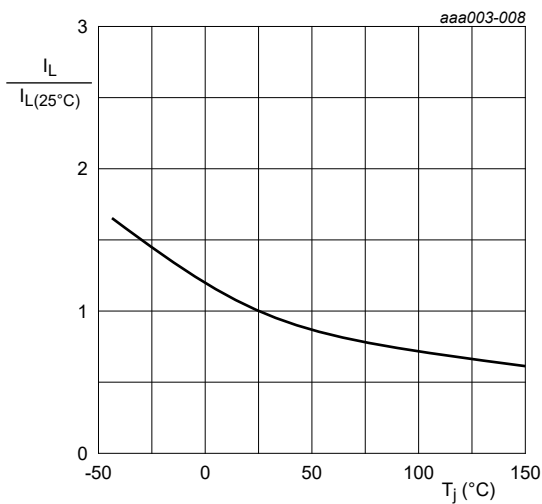


Fig. 9. Normalized latching current as a function of junction temperature

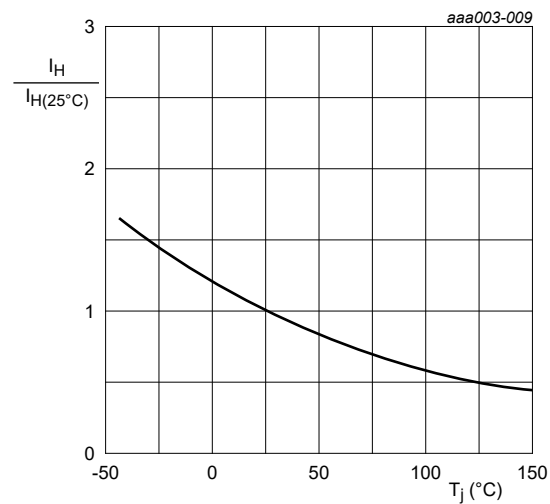
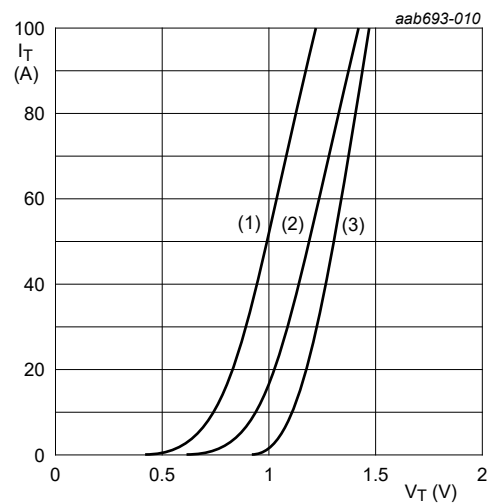


Fig. 10. Normalized holding current as a function of junction temperature



$V_o = 0.989\text{ V}$ ;  $R_s = 0.0042\text{ }\Omega$   
(1)  $T_j = 150\text{ }^\circ\text{C}$ ; typical values  
(2)  $T_j = 150\text{ }^\circ\text{C}$ ; maximum values  
(3)  $T_j = 25\text{ }^\circ\text{C}$ ; maximum values

Fig. 11. On-state current as a function of on-state voltage

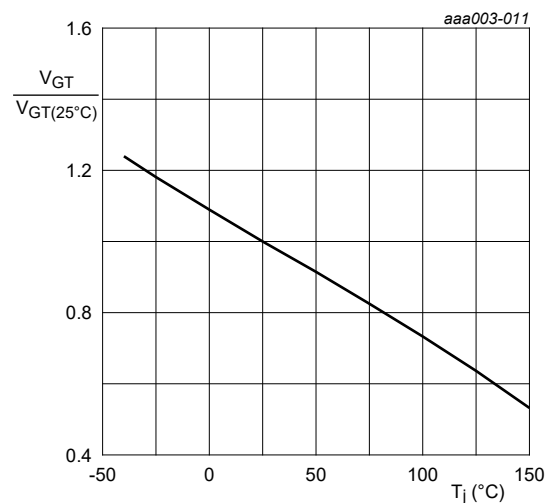


Fig. 12. Normalized gate trigger voltage as a function of junction temperature



11. Package outline

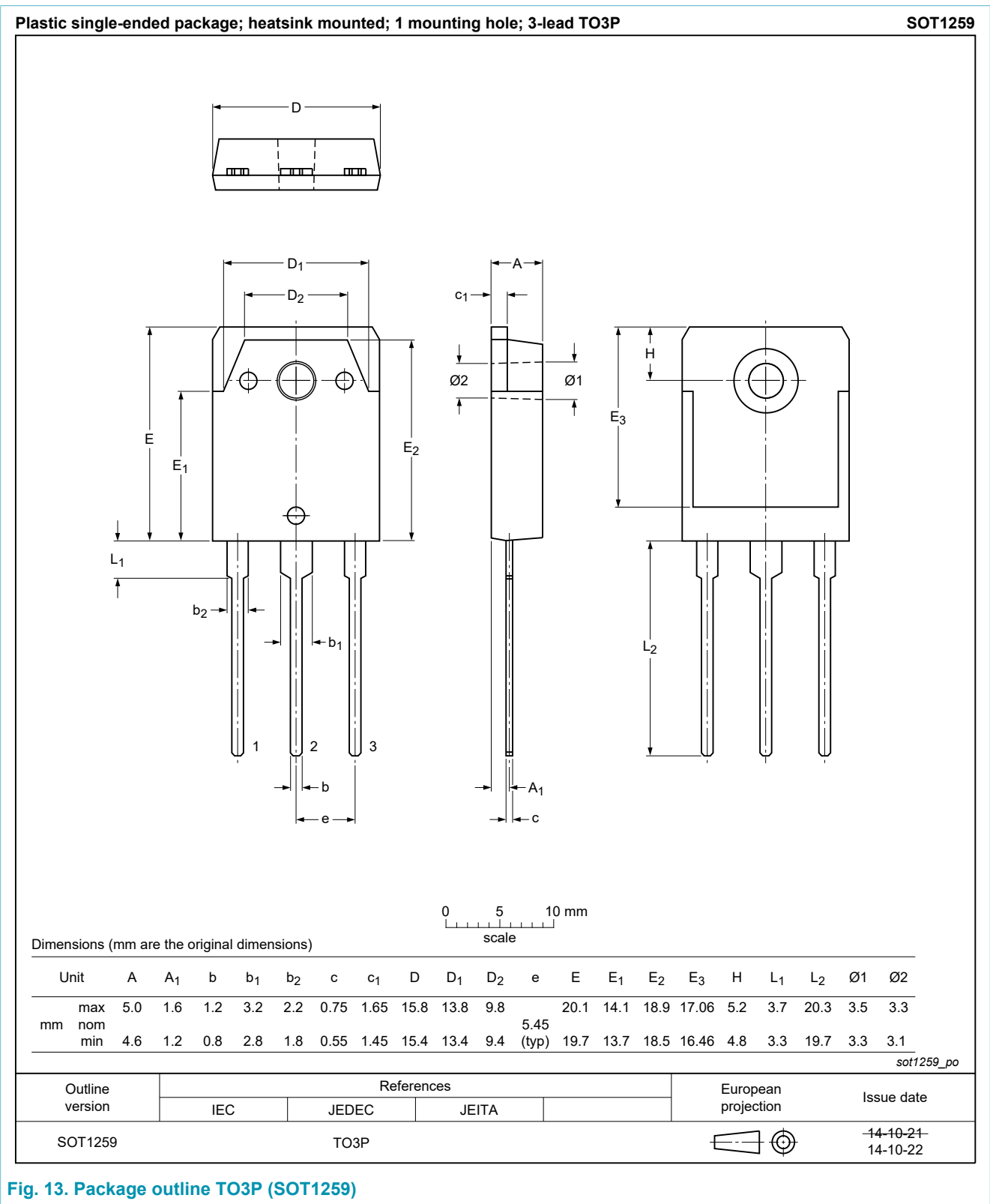


Fig. 13. Package outline TO3P (SOT1259)

## 12. Legal information

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Document status [1][2]	Product status [3]	Definition
Objective [short] data sheet	Development	This document contains data from the objective specification for product development.
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13. Contents

1. General description..... 1

2. Features and benefits..... 1

3. Applications..... 1

4. Quick reference data..... 1

5. Pinning information.....2

6. Ordering information.....2

7. Marking.....2

8. Limiting values..... 3

9. Thermal characteristics..... 6

10. Characteristics.....7

11. Package outline..... 10

12. Legal information..... 11

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Date of release: 20 December 2016