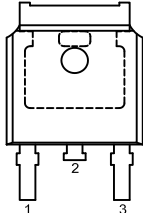
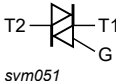


Symbol	Parameter	Conditions		Min	Typ	Max	Unit
		$V_D = 12\text{ V}$ ; $I_T = 0.1\text{ A}$ ; T2+ G-; $T_j = 25\text{ }^\circ\text{C}$ ; <a href="#">Fig. 7</a>		-	-	50	mA
		$V_D = 12\text{ V}$ ; $I_T = 0.1\text{ A}$ ; T2- G-; $T_j = 25\text{ }^\circ\text{C}$ ; <a href="#">Fig. 7</a>		-	-	50	mA
$I_H$	holding current	$V_D = 12\text{ V}$ ; $T_j = 25\text{ }^\circ\text{C}$ ; <a href="#">Fig. 9</a>		-	-	30	mA
$V_T$	on-state voltage	$I_T = 5\text{ A}$ ; $T_j = 25\text{ }^\circ\text{C}$ ; <a href="#">Fig. 10</a>		-	1.4	1.7	V
Dynamic characteristics							
$dV_D/dt$	rate of rise of off-state voltage	$V_{DM} = 536\text{ V}$ ; $T_j = 125\text{ }^\circ\text{C}$ ; ( $V_{DM} = 67\%$ of $V_{DRM}$ ); exponential waveform; gate open circuit		1000	-	-	V/ $\mu\text{s}$
$dI_{com}/dt$	rate of change of commutating current	$V_D = 400\text{ V}$ ; $T_j = 125\text{ }^\circ\text{C}$ ; $I_{T(RMS)} = 4\text{ A}$ ; $dV_{com}/dt = 20\text{ V}/\mu\text{s}$ ; (snubberless condition); gate open circuit		6	-	-	A/ms

5. Pinning information

Table 2. Pinning information

Pin	Symbol	Description	Simplified outline	Graphic symbol
1	T1	main terminal 1	 DPAK (SOT428)	 sym051
2	T2	main terminal 2		
3	G	gate		
mb	T2	mounting base; main terminal 2		

6. Ordering information

Table 3. Ordering information

Type number	Package		
	Name	Description	Version
BTA204S-800B	DPAK	plastic single-ended surface-mounted package (DPAK); 3 leads (one lead cropped)	SOT428

7. Limiting values

Table 4. Limiting values  
In accordance with the Absolute Maximum Rating System (IEC 60134).

Symbol	Parameter	Conditions	Min	Max	Unit
$V_{\text{DRM}}$	repetitive peak off-state voltage		-	800	V
$I_{\text{T(RMS)}}$	RMS on-state current	full sine wave; $T_{\text{mb}} \leq 107\text{ }^{\circ}\text{C}$ ; Fig. 1; Fig. 2; Fig. 3	-	4	A
$I_{\text{TSM}}$	non-repetitive peak on-state current	full sine wave; $T_{\text{j(init)}} = 25\text{ }^{\circ}\text{C}$ ; $t_{\text{p}} = 20\text{ ms}$ ; Fig. 4; Fig. 5	-	25	A
		full sine wave; $T_{\text{j(init)}} = 25\text{ }^{\circ}\text{C}$ ; $t_{\text{p}} = 16.7\text{ ms}$	-	27	A
$I^2t$	$I^2t$ for fusing	$t_{\text{p}} = 10\text{ ms}$ ; SIN	-	3.1	$\text{A}^2\text{s}$
$di_{\text{T}}/dt$	rate of rise of on-state current	$I_{\text{G}} = 100\text{ mA}$	-	100	$\text{A}/\mu\text{s}$
$I_{\text{GM}}$	peak gate current		-	2	A
$P_{\text{GM}}$	peak gate power		-	5	W
$P_{\text{G(AV)}}$	average gate power	over any 20 ms period	-	0.5	W
$T_{\text{stg}}$	storage temperature		-40	150	$^{\circ}\text{C}$
$T_{\text{j}}$	junction temperature		-	125	$^{\circ}\text{C}$

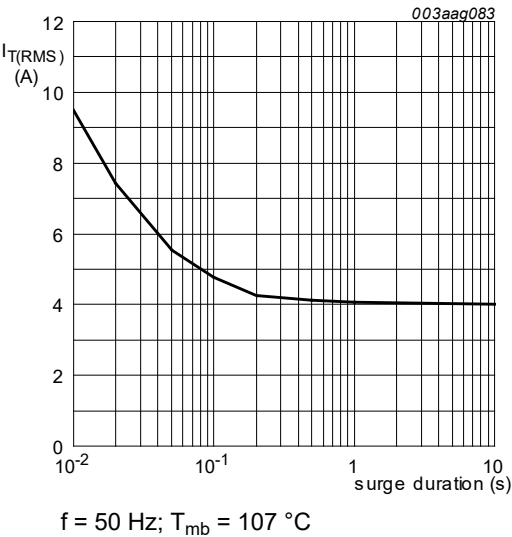


Fig. 1. RMS on-state current as a function of surge duration; maximum values

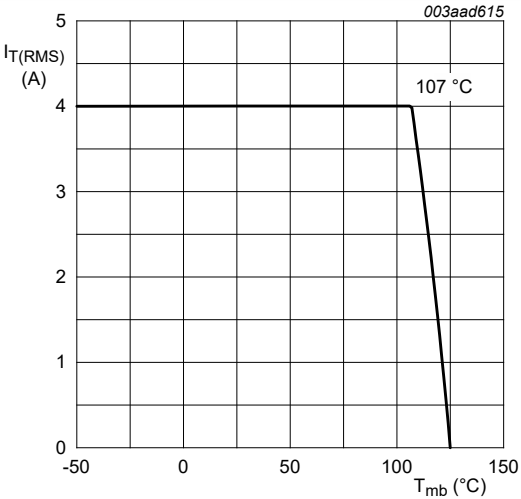
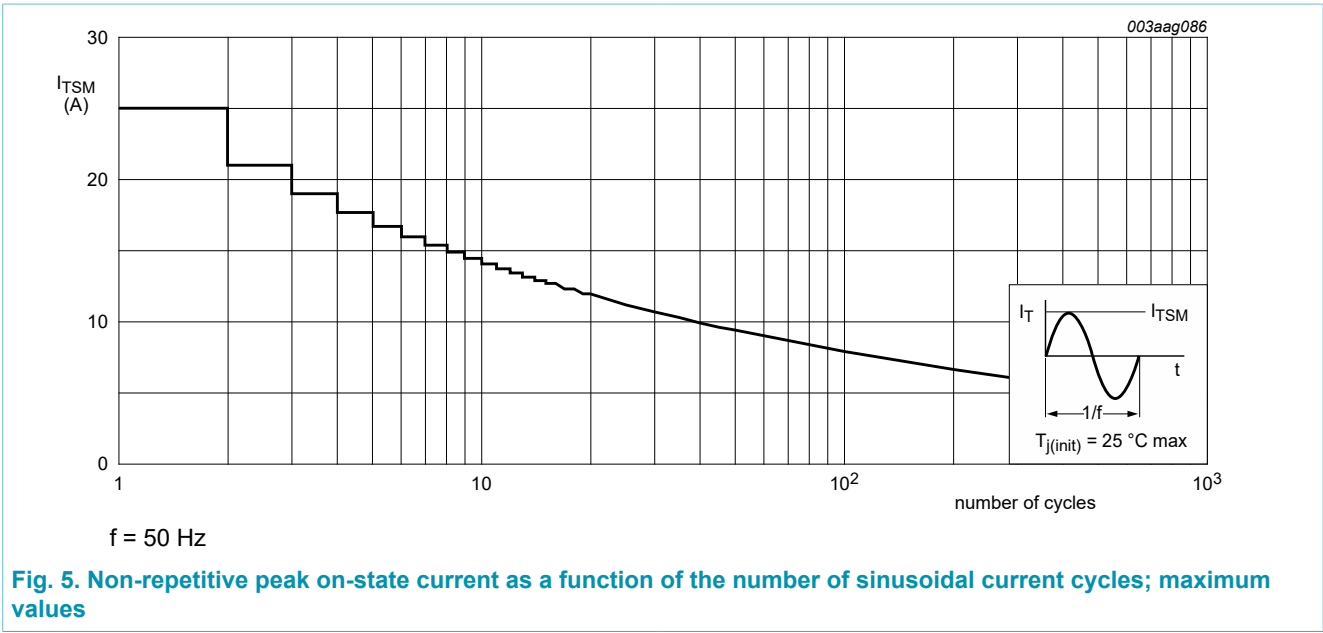


Fig. 2. RMS on-state current as a function of mounting base temperature; maximum values

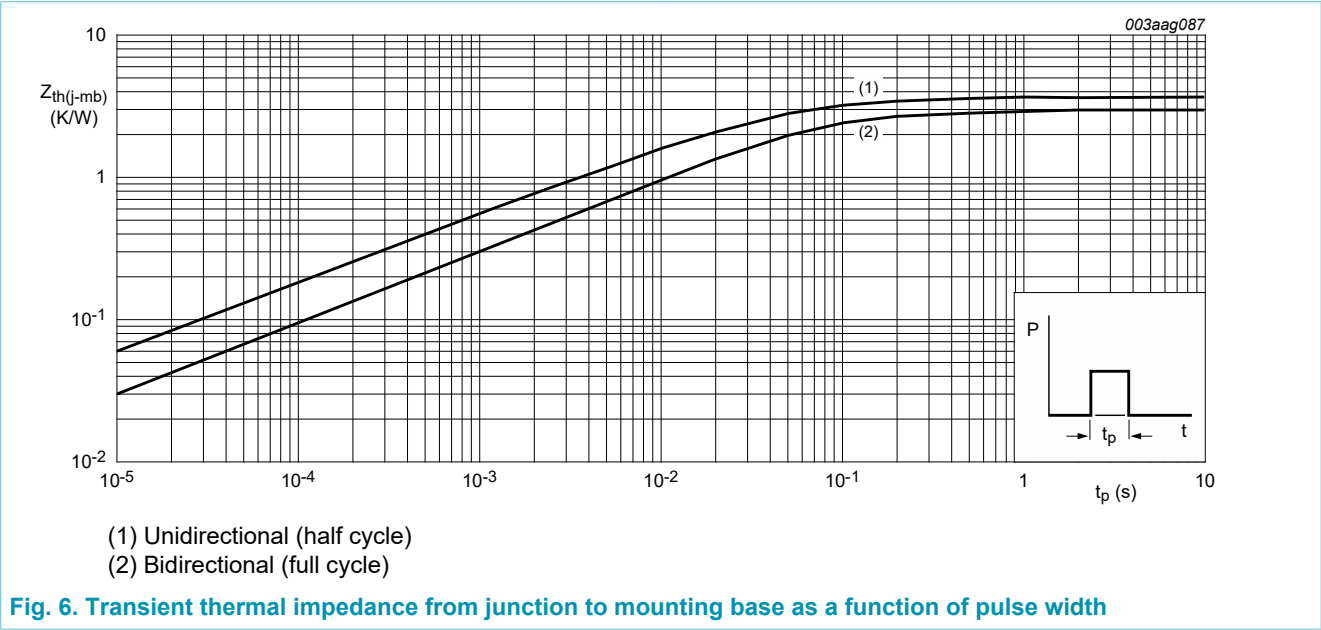




8. Thermal characteristics

Table 5. Thermal characteristics

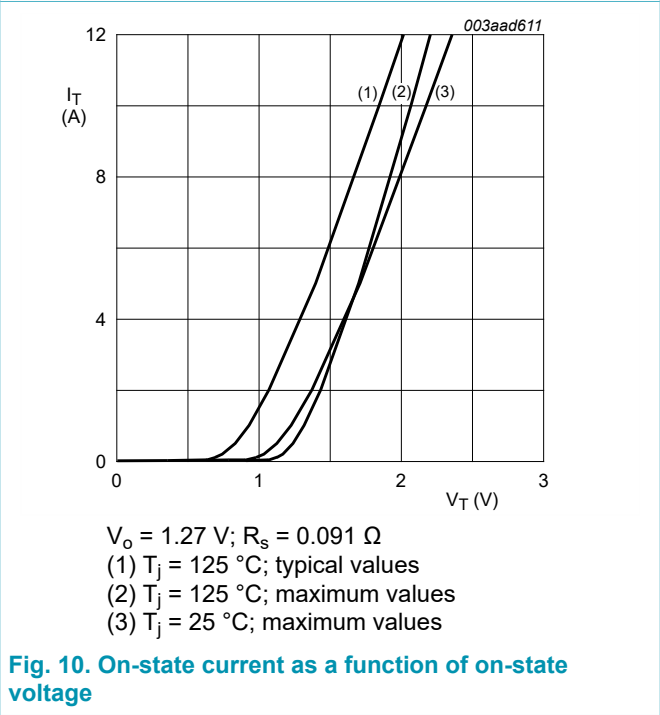
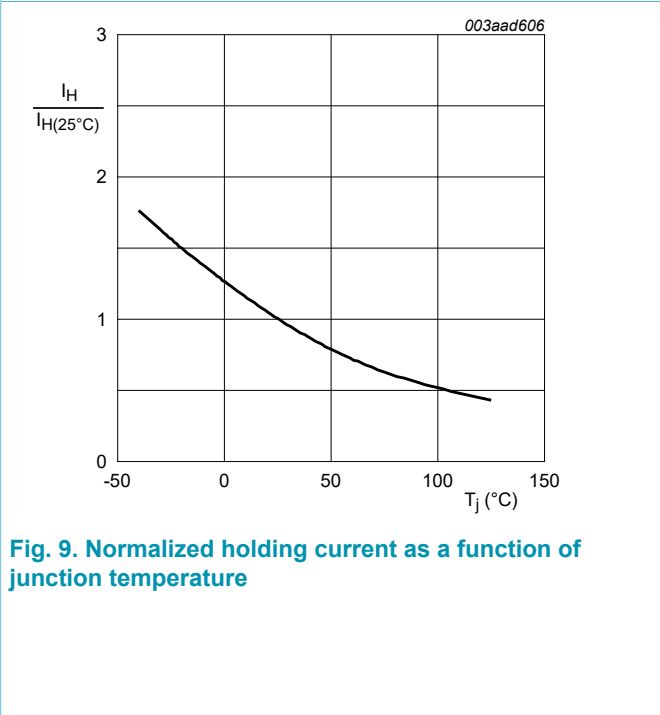
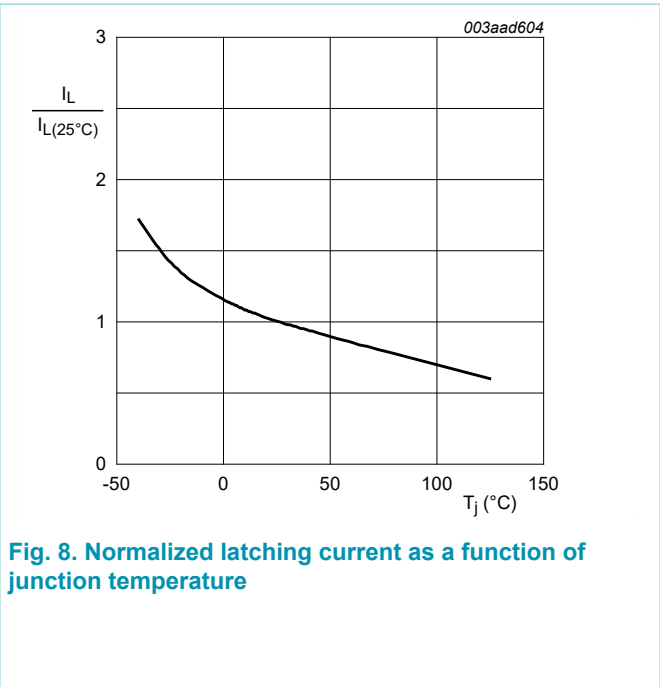
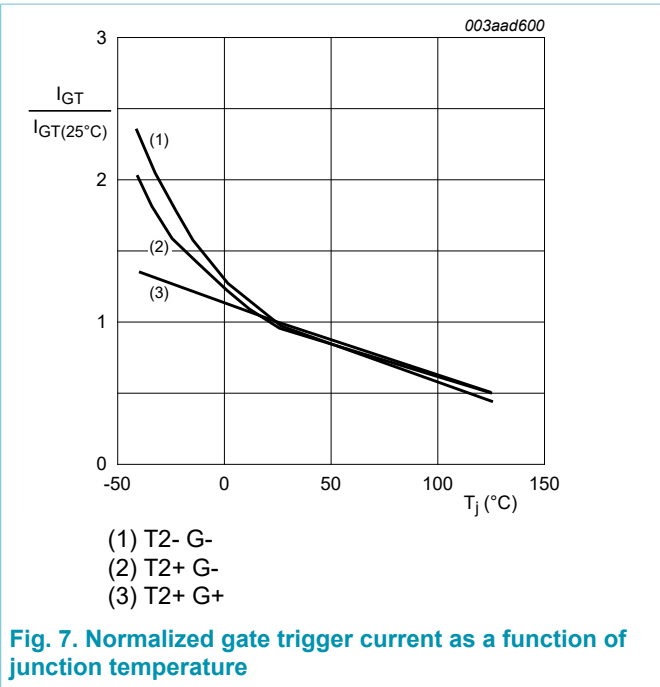
Symbol	Parameter	Conditions	Min	Typ	Max	Unit
R <sub>th(j-mb)</sub>	thermal resistance from junction to mounting base	full cycle; Fig. 6	-	-	3	K/W
		half cycle; Fig. 6	-	-	3.7	K/W
R <sub>th(j-a)</sub>	thermal resistance from junction to ambient free air	printed circuit board (FR4) mounted	-	75	-	K/W



## 9. Characteristics

Table 6. Characteristics

Symbol	Parameter	Conditions		Min	Typ	Max	Unit
<b>Static characteristics</b>							
$I_{GT}$	gate trigger current	$V_D = 12\text{ V}$ ; $I_T = 0.1\text{ A}$ ; T2+ G+; $T_j = 25\text{ }^\circ\text{C}$ ; <a href="#">Fig. 7</a>		-	-	50	mA
		$V_D = 12\text{ V}$ ; $I_T = 0.1\text{ A}$ ; T2+ G-; $T_j = 25\text{ }^\circ\text{C}$ ; <a href="#">Fig. 7</a>		-	-	50	mA
		$V_D = 12\text{ V}$ ; $I_T = 0.1\text{ A}$ ; T2- G-; $T_j = 25\text{ }^\circ\text{C}$ ; <a href="#">Fig. 7</a>		-	-	50	mA
$I_L$	latching current	$V_D = 12\text{ V}$ ; $I_G = 0.1\text{ A}$ ; T2+ G+; $T_j = 25\text{ }^\circ\text{C}$ ; <a href="#">Fig. 8</a>		-	-	30	mA
		$V_D = 12\text{ V}$ ; $I_G = 0.1\text{ A}$ ; T2+ G-; $T_j = 25\text{ }^\circ\text{C}$ ; <a href="#">Fig. 8</a>		-	-	45	mA
		$V_D = 12\text{ V}$ ; $I_G = 0.1\text{ A}$ ; T2- G-; $T_j = 25\text{ }^\circ\text{C}$ ; <a href="#">Fig. 8</a>		-	-	30	mA
$I_H$	holding current	$V_D = 12\text{ V}$ ; $T_j = 25\text{ }^\circ\text{C}$ ; <a href="#">Fig. 9</a>		-	-	30	mA
$V_T$	on-state voltage	$I_T = 5\text{ A}$ ; $T_j = 25\text{ }^\circ\text{C}$ ; <a href="#">Fig. 10</a>		-	1.4	1.7	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. 11</a>		-	0.7	1	V
		$V_D = 400\text{ V}$ ; $I_T = 0.1\text{ A}$ ; $T_j = 125\text{ }^\circ\text{C}$ ; <a href="#">Fig. 11</a>		0.25	0.4	-	V
$I_D$	off-state current	$V_D = 800\text{ V}$ ; $T_j = 125\text{ }^\circ\text{C}$		-	0.1	0.5	mA
<b>Dynamic characteristics</b>							
$dV_D/dt$	rate of rise of off-state voltage	$V_{DM} = 536\text{ V}$ ; $T_j = 125\text{ }^\circ\text{C}$ ; ( $V_{DM} = 67\%$ of $V_{DRM}$ ); exponential waveform; gate open circuit		1000	-	-	V/ $\mu\text{s}$
$dI_{com}/dt$	rate of change of commutating current	$V_D = 400\text{ V}$ ; $T_j = 125\text{ }^\circ\text{C}$ ; $I_{T(RMS)} = 4\text{ A}$ ; $dV_{com}/dt = 20\text{ V}/\mu\text{s}$ ; (snubberless condition); gate open circuit		6	-	-	A/ms



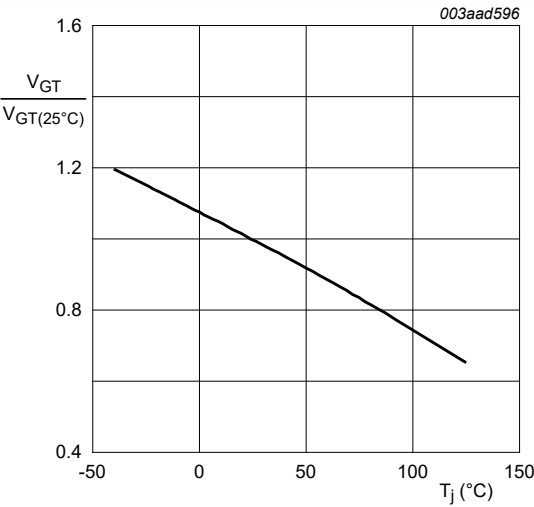
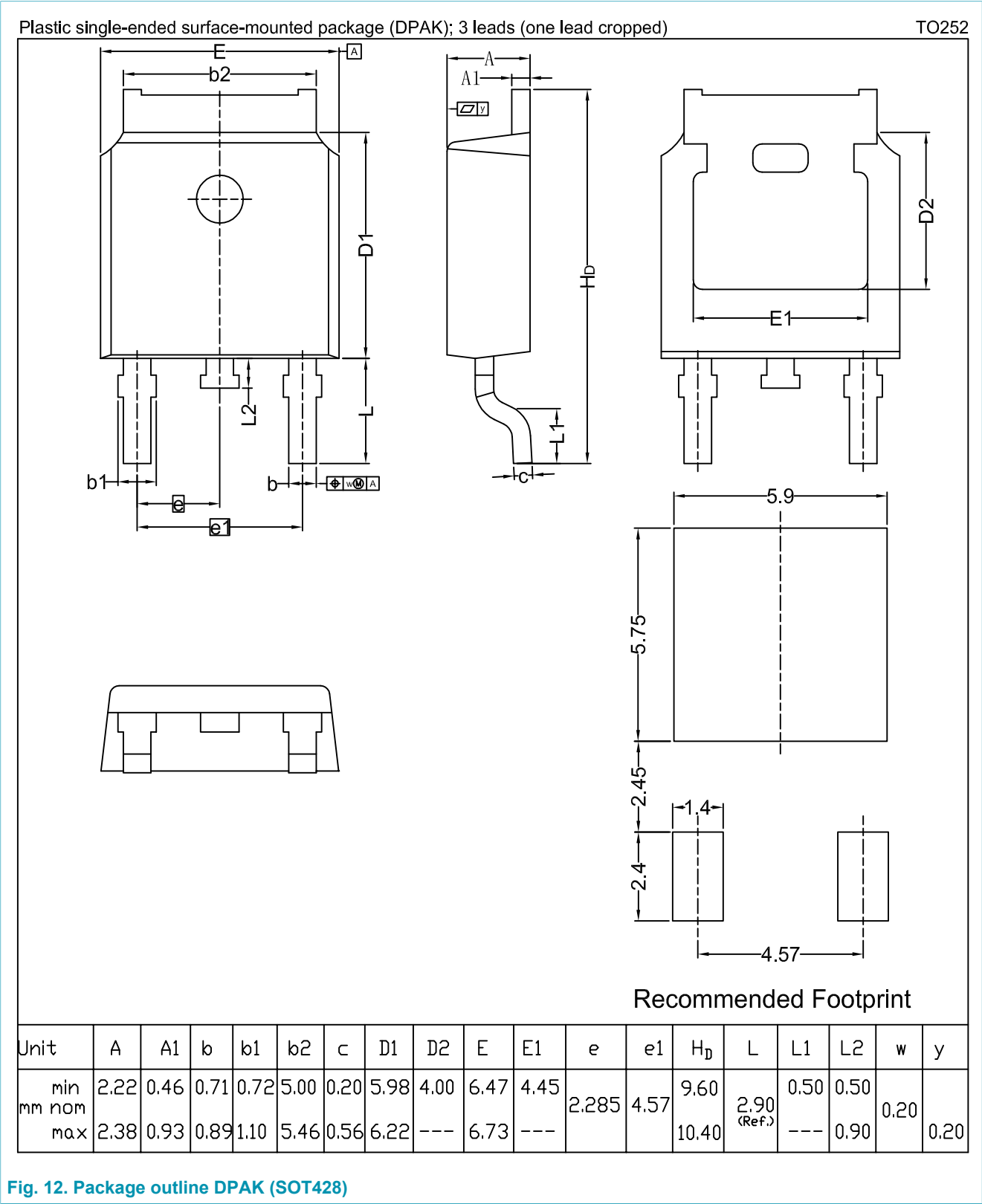


Fig. 11. Normalized gate trigger voltage as a function of junction temperature



10. Package outline



## 11. Legal information

### Data sheet status

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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12. 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. Limiting values..... 3

8. Thermal characteristics..... 6

9. Characteristics..... 7

10. Package outline..... 10

11. Legal information..... 11

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