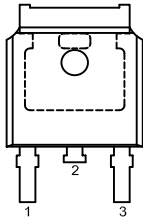
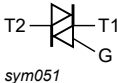


Symbol	Parameter	Conditions		Min	Typ	Max	Unit
		$V_D = 12\text{ V}$; $I_T = 0.1\text{ A}$; T2- G-; $T_j = 25\text{ }^{\circ}\text{C}$; Fig. 7		-	2.5	5	mA
		$V_D = 12\text{ V}$; $I_T = 0.1\text{ A}$; T2- G+; $T_j = 25\text{ }^{\circ}\text{C}$; Fig. 7		-	5	10	mA
I_H	holding current	$V_D = 12\text{ V}$; $T_j = 25\text{ }^{\circ}\text{C}$; Fig. 9		-	1.2	10	mA
V_T	on-state voltage	$I_T = 5\text{ A}$; $T_j = 25\text{ }^{\circ}\text{C}$; Fig. 10		-	1.4	1.7	V
Dynamic characteristics							
dV_D/dt	rate of rise of off-state voltage	$V_{DM} = 402\text{ V}$; $T_j = 125\text{ }^{\circ}\text{C}$; ($V_{DM} = 67\%$ of V_{DRM}); exponential waveform; gate open circuit		-	5	-	V/ μs

5. Pinning information

Table 2. Pinning information

Pin	Symbol	Description	Simplified outline	Graphic symbol
1	T1	main terminal 1	 <p>DPAK (SOT428)</p>	
2	T2	main terminal 2 ^[1]		
3	G	gate		
mb	T2	mounting base; connected to main terminal 2		

[1] it is not possible to make a connection to pin 2 of the SOT428 (DPAK) package

6. Ordering information

Table 3. Ordering information

Type number	Package		
	Name	Description	Version
BT136S-600D	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 _{DRM}	repetitive peak off-state voltage			-	600	V
I _{T(RMS)}	RMS on-state current	full sine wave; T _{mb} ≤ 107 °C; Fig. 1; Fig. 2; Fig. 3		-	4	A
I _{TSM}	non-repetitive peak on-state current	full sine wave; T _{j(init)} = 25 °C; t _p = 20 ms; Fig. 4; Fig. 5		-	25	A
		full sine wave; T _{j(init)} = 25 °C; t _p = 16.7 ms; Fig. 4; Fig. 5		-	27	A
I ² t	I ² t for fusing	t _p = 10 ms; SIN		-	3.1	A ² s
dI _T /dt	rate of rise of on-state current	I _G = 20 mA		-	50	A/μs
I _{GM}	peak gate current			-	2	A
P _{GM}	peak gate power			-	5	W
P _{G(AV)}	average gate power	over any 20 ms period		-	0.5	W
T _{stg}	storage temperature			-40	150	°C
T _j	junction temperature			-	125	°C

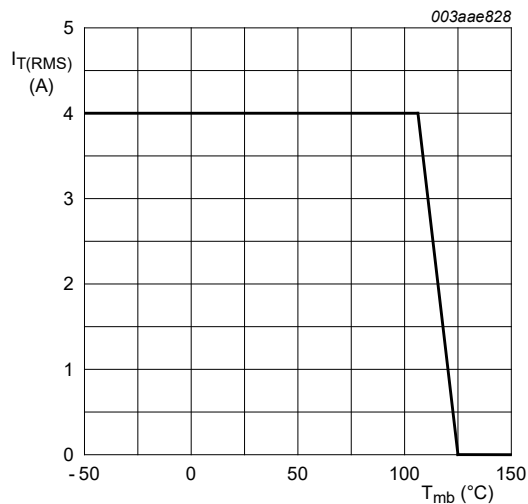


Fig. 1. RMS on-state current as a function of mounting base temperature; maximum values

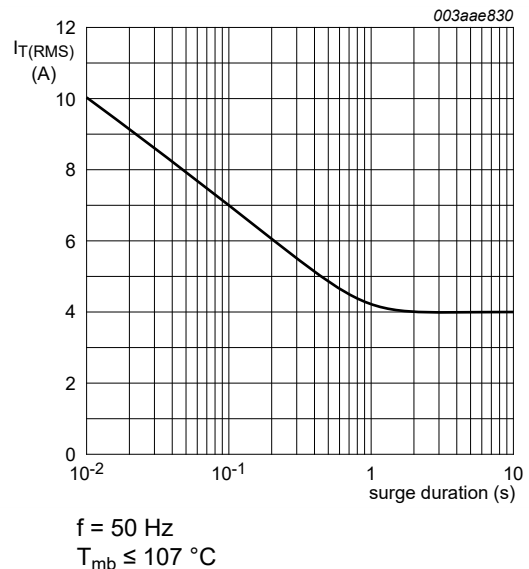
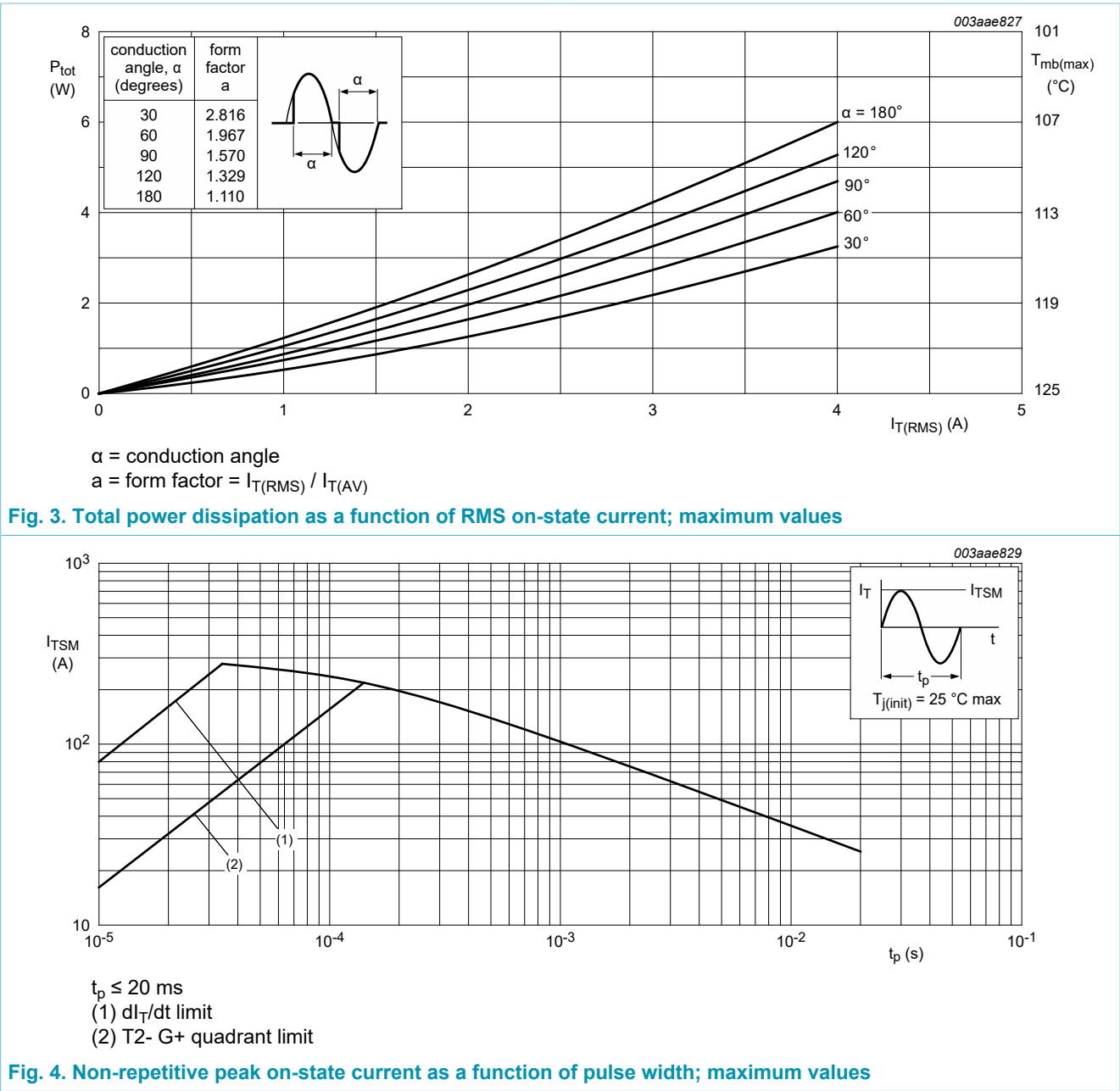
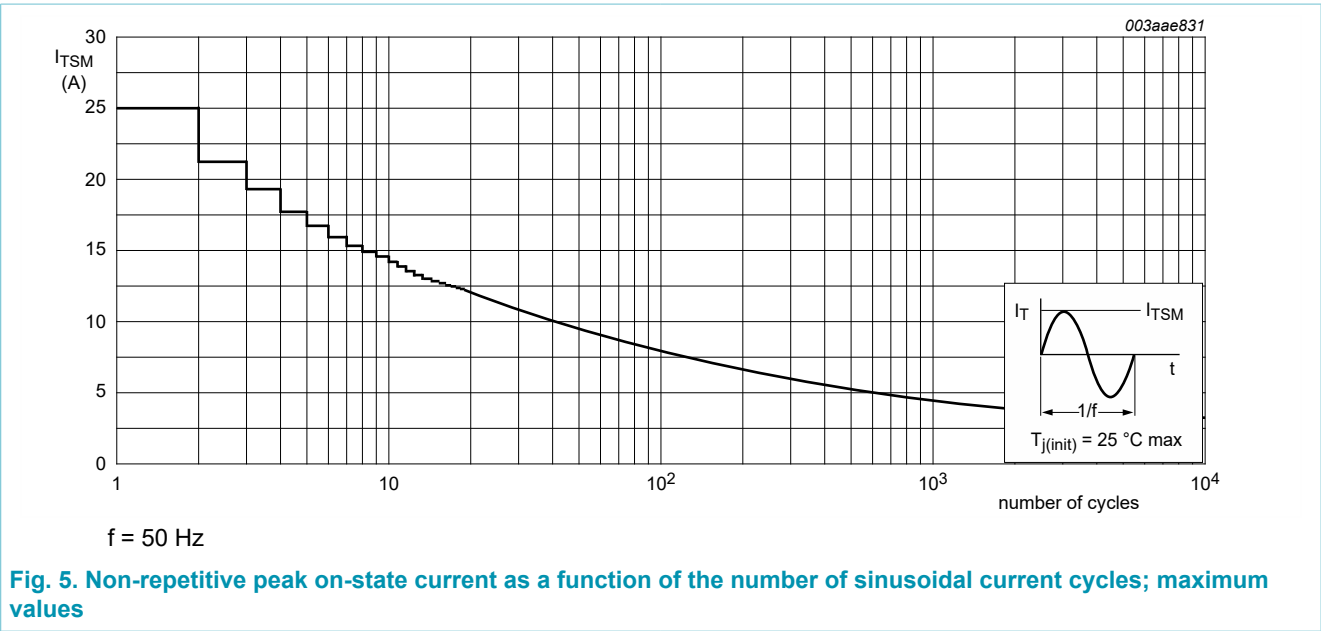


Fig. 2. RMS on-state current as a function of surge duration; maximum values





8. Thermal characteristics

Table 5. Thermal characteristics

Symbol	Parameter	Conditions		Min	Typ	Max	Unit
$R_{th(j-mb)}$	thermal resistance from junction to mounting base	full cycle; Fig. 6		-	-	3	K/W
		half cycle; Fig. 6		-	-	3.7	K/W
$R_{th(j-a)}$	thermal resistance from junction to ambient free air	in free air	[1]	-	75	-	K/W

[1] printed circuit board (FR4) mounted; standard footprint, single-sided copper, tin-plated

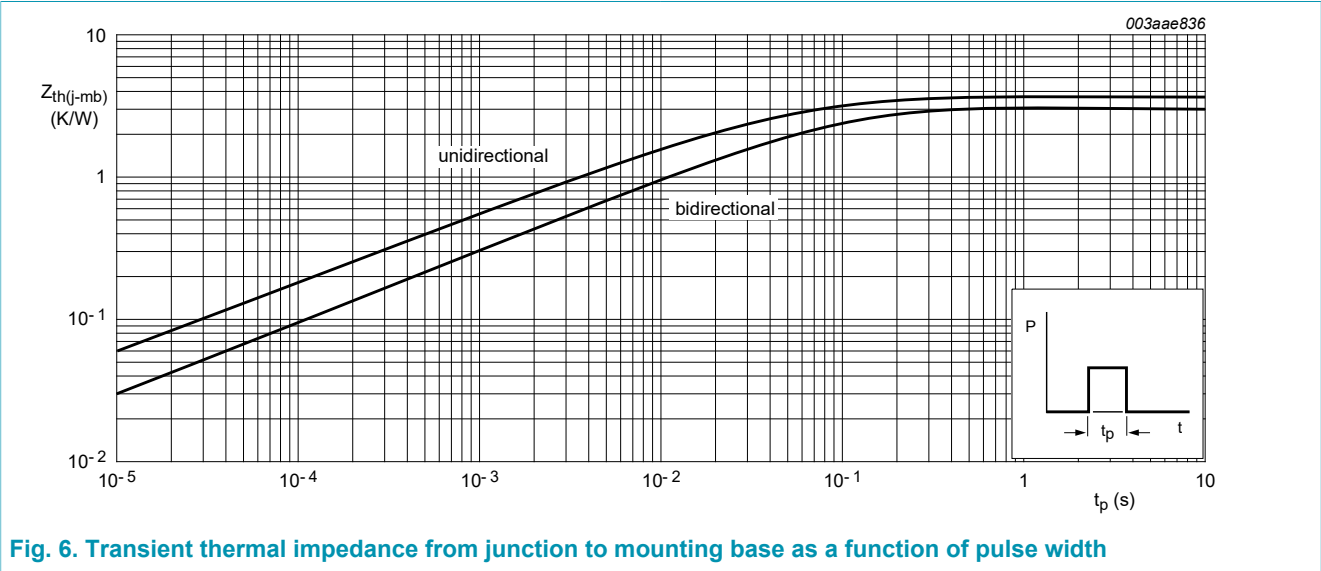
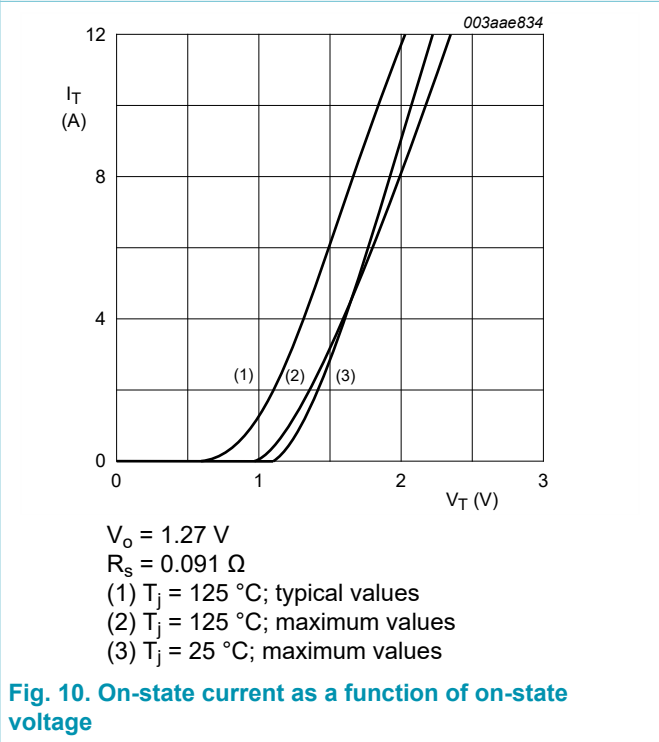
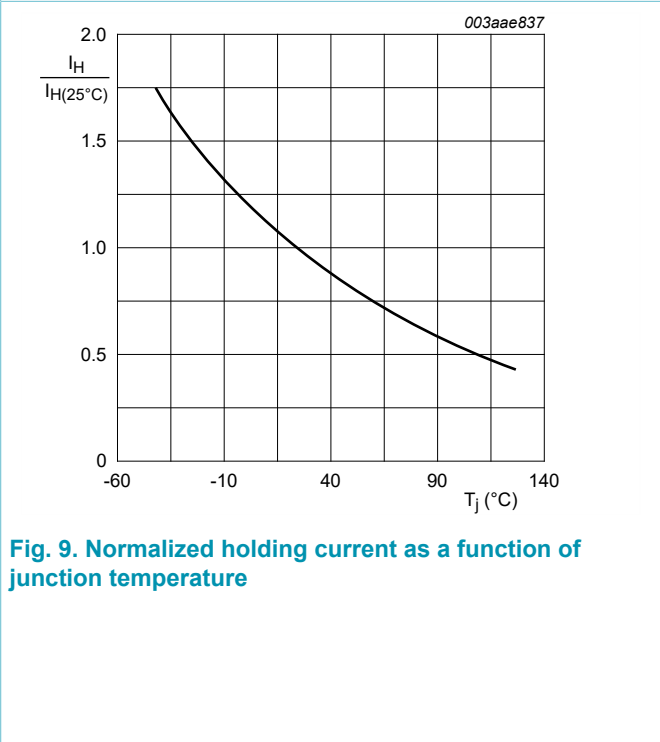
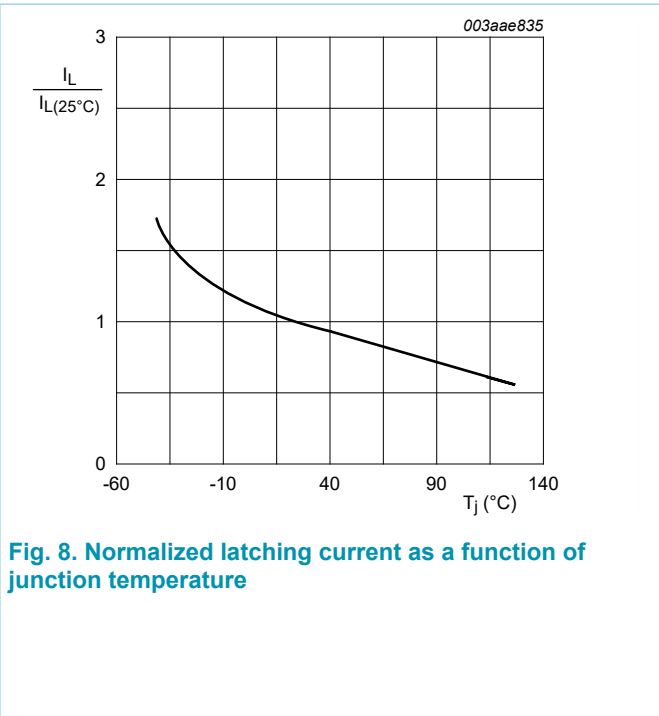
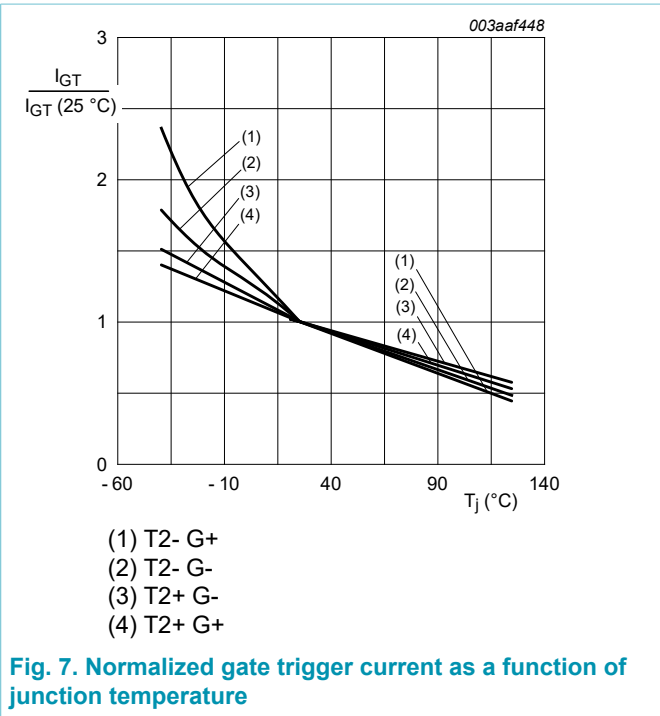


Fig. 6. Transient thermal impedance from junction to mounting base as a function of pulse width

9. Characteristics

Table 6. Characteristics

Symbol	Parameter	Conditions		Min	Typ	Max	Unit
Static characteristics							
I_{GT}	gate trigger current	$V_D = 12\text{ V}$; $I_T = 0.1\text{ A}$; T2+ G+; $T_j = 25\text{ }^\circ\text{C}$; Fig. 7		-	2	5	mA
		$V_D = 12\text{ V}$; $I_T = 0.1\text{ A}$; T2+ G-; $T_j = 25\text{ }^\circ\text{C}$; Fig. 7		-	2.5	5	mA
		$V_D = 12\text{ V}$; $I_T = 0.1\text{ A}$; T2- G-; $T_j = 25\text{ }^\circ\text{C}$; Fig. 7		-	2.5	5	mA
		$V_D = 12\text{ V}$; $I_T = 0.1\text{ A}$; T2- G+; $T_j = 25\text{ }^\circ\text{C}$; Fig. 7		-	5	10	mA
I_L	latching current	$V_D = 12\text{ V}$; $I_G = 0.1\text{ A}$; T2+ G+; $T_j = 25\text{ }^\circ\text{C}$; Fig. 8		-	1.6	10	mA
		$V_D = 12\text{ V}$; $I_G = 0.1\text{ A}$; T2+ G-; $T_j = 25\text{ }^\circ\text{C}$; Fig. 8		-	4.5	15	mA
		$V_D = 12\text{ V}$; $I_G = 0.1\text{ A}$; T2- G-; $T_j = 25\text{ }^\circ\text{C}$; Fig. 8		-	1.2	10	mA
		$V_D = 12\text{ V}$; $I_G = 0.1\text{ A}$; T2- G+; $T_j = 25\text{ }^\circ\text{C}$; Fig. 8		-	2.2	15	mA
I_H	holding current	$V_D = 12\text{ V}$; $T_j = 25\text{ }^\circ\text{C}$; Fig. 9		-	1.2	10	mA
V_T	on-state voltage	$I_T = 5\text{ A}$; $T_j = 25\text{ }^\circ\text{C}$; Fig. 10		-	1.4	1.7	V
V_{GT}	gate trigger voltage	$V_D = 12\text{ V}$; $I_T = 0.1\text{ A}$; $T_j = 25\text{ }^\circ\text{C}$; Fig. 11		-	0.7	1	V
		$V_D = 400\text{ V}$; $I_T = 0.1\text{ A}$; $T_j = 125\text{ }^\circ\text{C}$; Fig. 11		0.25	0.4	-	V
I_D	off-state current	$V_D = 600\text{ V}$; $T_j = 125\text{ }^\circ\text{C}$		-	0.1	0.5	mA
Dynamic characteristics							
dV_D/dt	rate of rise of off-state voltage	$V_{DM} = 402\text{ V}$; $T_j = 125\text{ }^\circ\text{C}$; ($V_{DM} = 67\%$ of V_{DRM}); exponential waveform; gate open circuit		-	5	-	V/ μs



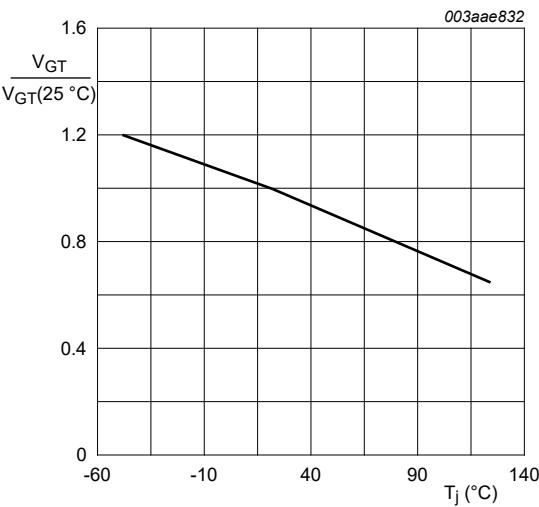
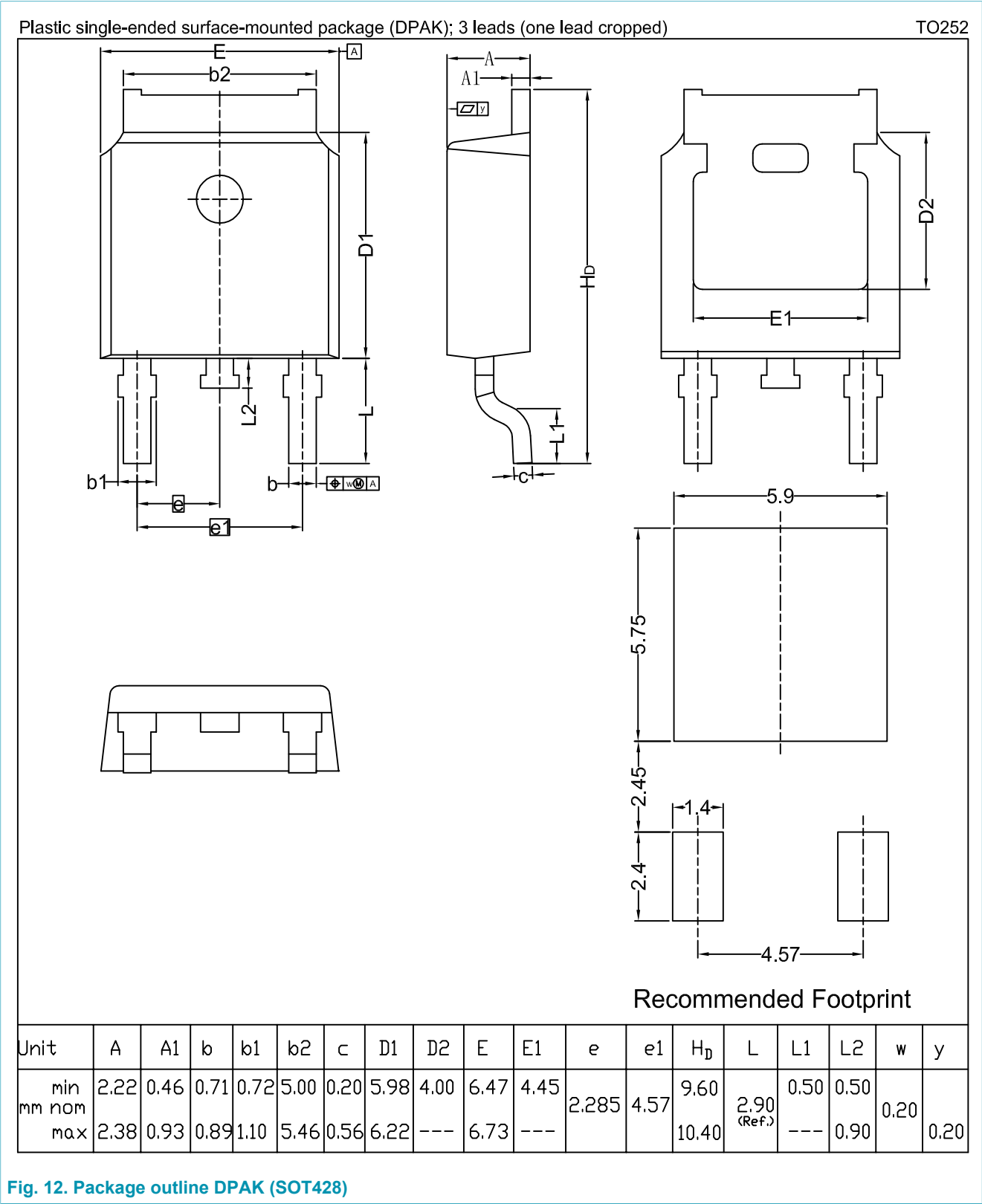


Fig. 11. Normalized gate trigger voltage as a function of junction temperature

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.
Preliminary [short] data sheet	Qualification	This document contains data from the preliminary specification.
Product [short] data sheet	Production	This document contains the product specification.

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- [2] The term 'short data sheet' is explained in section "Definitions".
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Date of release: 15 September 2018