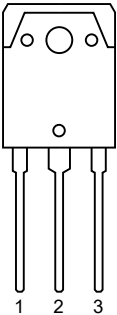
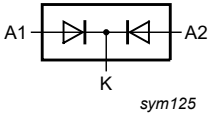


Symbol	Parameter	Conditions		Min	Typ	Max	Unit
		$I_F = 15\text{ A}; V_R = 400\text{ V}; dI_F/dt = 500\text{ A}/\mu\text{s}; T_j = 25\text{ }^\circ\text{C}$		-	34	-	ns

5. Pinning information

Table 2. Pinning information

Pin	Symbol	Description	Simplified outline	Graphic symbol
1	A1	anode 1	 TO3P (SOT1259)	 sym125
2	K	cathode		
3	A2	anode 2		
mb	mb	mounting base; connected to cathode		

6. Ordering information

Table 3. Ordering information

Type number	Package		
	Name	Description	Version
BYV415K-600P	TO3P	Plastic single-ended package; heatsink mounted; 1 mounting hole; 3-lead TO3P	SOT1259

7. Limiting values

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

Symbol	Parameter	Conditions	Min	Max	Unit
V _{RRM}	repetitive peak reverse voltage		-	600	V
V _{RWM}	crest working reverse voltage		-	600	V
V _R	reverse voltage	DC	-	600	V
I _{F(AV)}	average forward current	δ = 0.5 ; T _{mb} ≤ 126 °C; square-wave pulse; Fig. 1; Fig. 2; Fig. 3	-	15	A
I _{O(AV)}	average output current	δ = 0.5 ; T _{mb} ≤ 116 °C; square-wave pulse; both diodes conducting	-	30	A
I _{FRM}	repetitive peak forward current	δ = 0.5 ; t _p = 25 μs; T _{mb} ≤ 126 °C; Square-wave pulse	-	30	A
I _{FSM}	non-repetitive peak forward current	t _p = 10 ms; T _{j(init)} = 25 °C; sine-wave pulse; per diode; Fig. 4	-	140	A
		t _p = 8.3 ms; T _{j(init)} = 25 °C; sine-wave pulse; per diode; Fig. 4	-	155	A
T _{stg}	storage temperature		-65	175	°C
T _j	junction temperature		-	175	°C

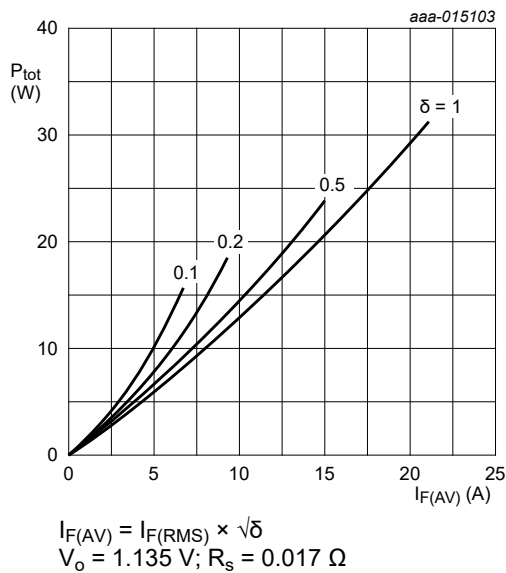


Fig. 1. Forward power dissipation as a function of average forward current; square waveform; maximum values

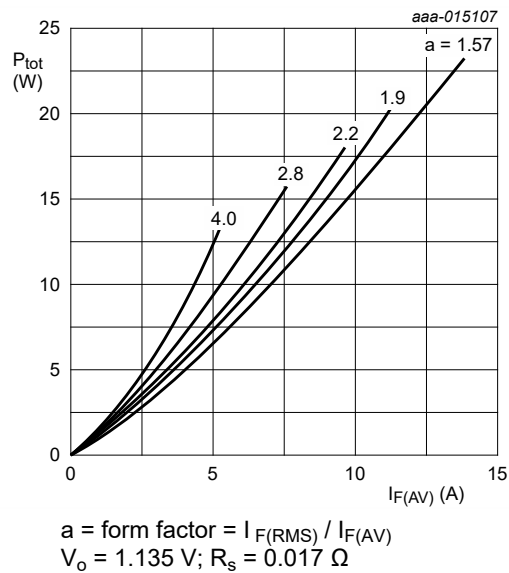


Fig. 2. Forward power dissipation as a function of average forward current; sinusoidal waveform; maximum values

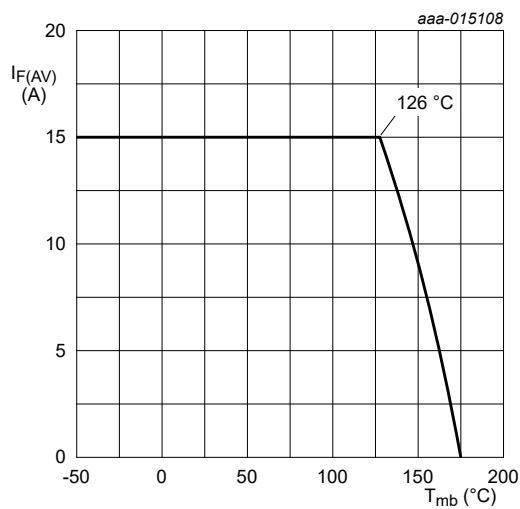


Fig. 3. Forward current as a function of mounting base temperature; maximum values

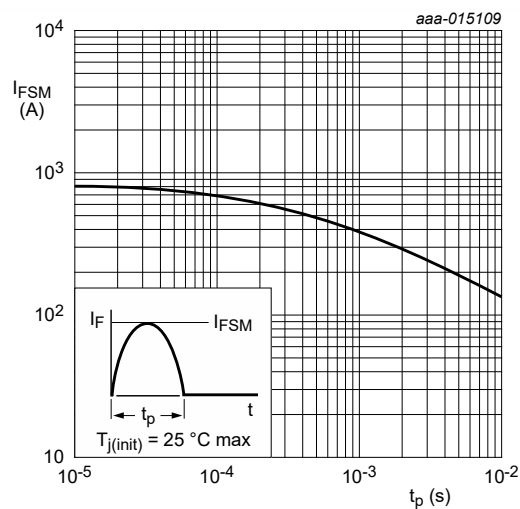


Fig. 4. Non-repetitive peak forward current as a function of pulse width; sinusoidal waveform; maximum values

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	with heatsink compound; per diode; Fig. 5	-	1.2	2	K/W
		with heatsink compound; both diodes conducting	-	0.65	1.2	K/W
$R_{th(j-a)}$	thermal resistance from junction to ambient free air	in free air	-	45	-	K/W

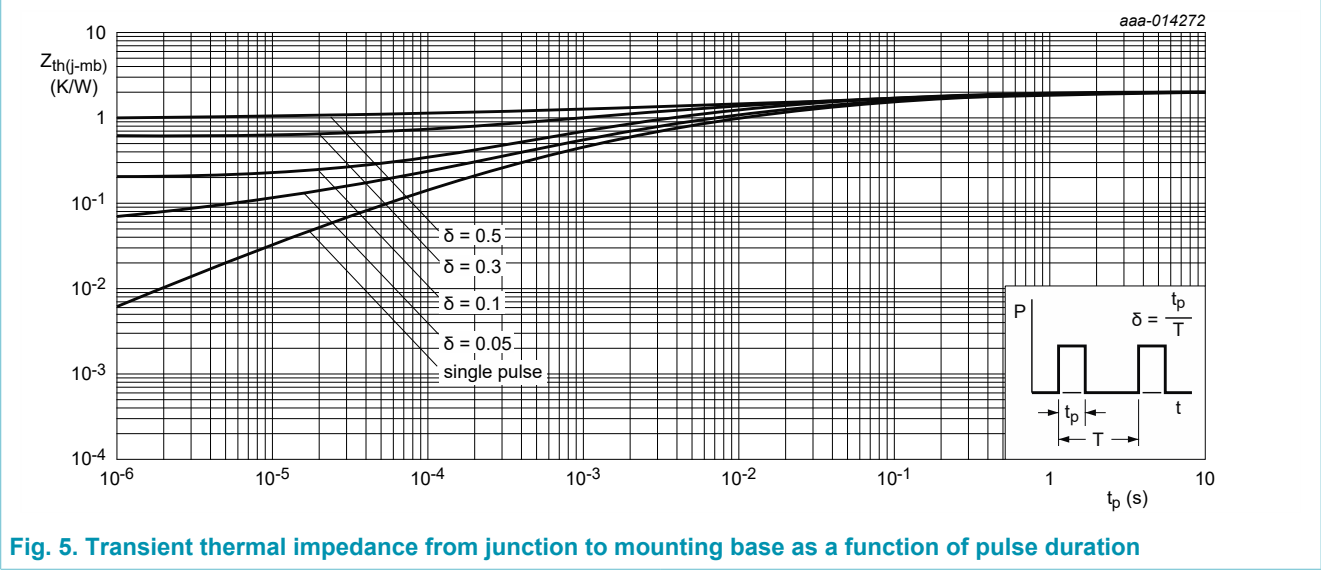


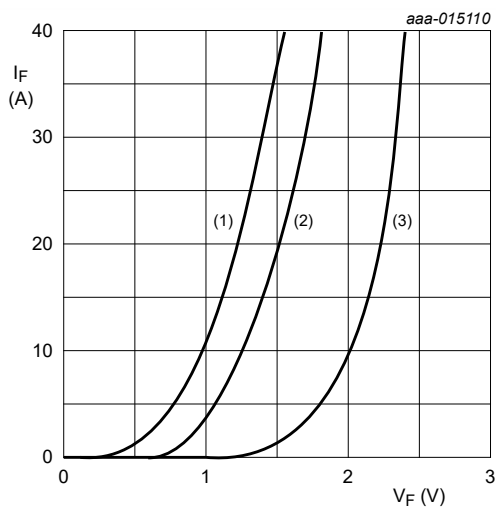
Fig. 5. Transient thermal impedance from junction to mounting base as a function of pulse duration

9. Characteristics

Table 6. Characteristics

characteristics are per diode unless otherwise stated

Symbol	Parameter	Conditions		Min	Typ	Max	Unit
Static characteristics							
V _F	forward voltage	I _F = 15 A; T _j = 25 °C; Fig. 6		-	1.4	2.1	V
		I _F = 15 A; T _j = 150 °C; Fig. 6		-	1.1	1.4	V
I _R	reverse current	V _R = 600 V; T _j = 25 °C		-	-	10	μA
		V _R = 600 V; T _j = 150 °C		-	-	500	μA
Dynamic characteristics							
t _{rr}	reverse recovery time	I _F = 1 A; V _R = 30 V; dI _F /dt = 100 A/μs; T _j = 25 °C; Fig. 7		-	25	50	ns
		I _F = 15 A; V _R = 400 V; dI _F /dt = 200 A/μs; T _j = 25 °C; Fig. 7		-	45	-	ns
		I _F = 15 A; V _R = 400 V; dI _F /dt = 200 A/μs; T _j = 125 °C; Fig. 7		-	65	-	ns
		I _F = 15 A; V _R = 400 V; dI _F /dt = 500 A/μs; T _j = 25 °C		-	34	-	ns
I _{RM}	peak reverse recovery current	I _F = 15 A; V _R = 400 V; dI _F /dt = 200 A/μs; T _j = 25 °C; Fig. 7		-	5.5	-	A
		I _F = 15 A; V _R = 400 V; dI _F /dt = 200 A/μs; T _j = 125 °C; Fig. 7		-	9.7	-	A
Q _r	recovered charge	I _F = 15 A; V _R = 400 V; dI _F /dt = 200 A/μs; T _j = 25 °C; Fig. 7		-	125	-	nC
		I _F = 15 A; V _R = 400 V; dI _F /dt = 200 A/μs; T _j = 125 °C; Fig. 7		-	318	-	nC



$V_o = 1.135\text{ V}; R_s = 0.017\ \Omega$
(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. 6. Forward current as a function of forward voltage

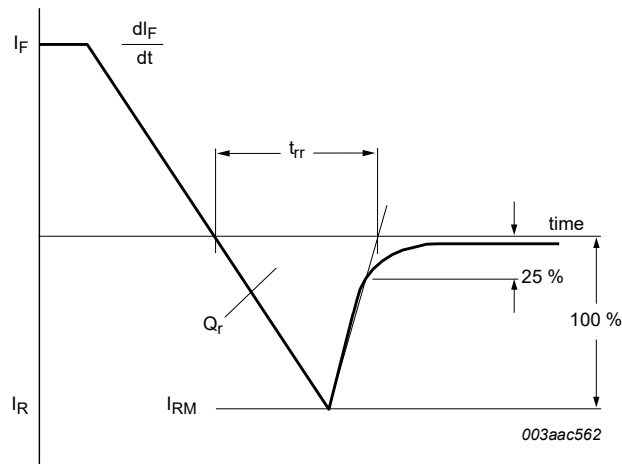


Fig. 7.

10. Package outline

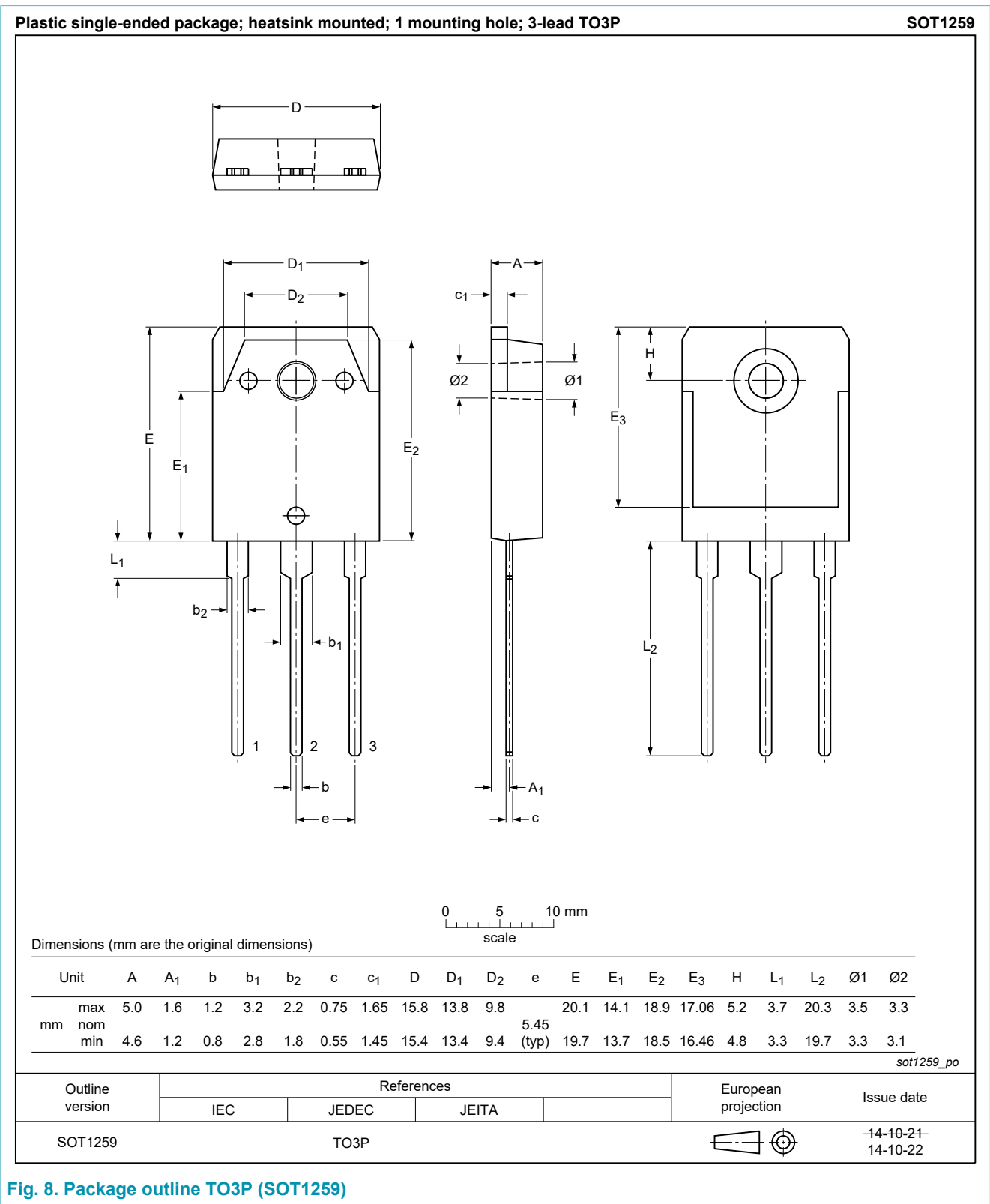


Fig. 8. Package outline TO3P (SOT1259)

11. Package outline

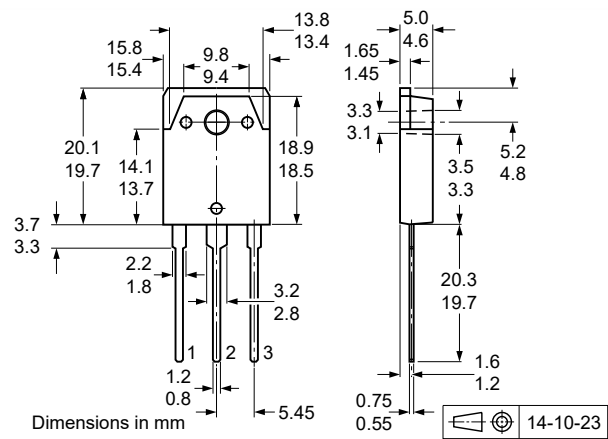


Fig. 9. Package outline TO3P (SOT1259)

12. 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: 22 February 2018