

3. Ordering information

Table 2. Ordering information

Type number	Package		
	Name	Description	Version
BYV34X-600	TO-220F	plastic single-ended package; isolated heatsink mounted; 1 mounting hole; 3-lead TO-220 'full pack'	SOT186A

4. Limiting values

Table 3. 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	square waveform; $\delta = 1.0$; $T_h \leq 100\text{ }^{\circ}\text{C}$	-	600	V
$I_{O(AV)}$	average output current	square waveform; $\delta = 0.5$; $T_h \leq 44\text{ }^{\circ}\text{C}$; both diodes conducting	-	20	A
I_{FRM}	repetitive peak forward current	$t = 25\text{ }\mu\text{s}$; square waveform; $\delta = 0.5$; $T_h \leq 44\text{ }^{\circ}\text{C}$; per diode	-	20	A
I_{FSM}	non-repetitive peak forward current	$t = 10\text{ ms}$; sinusoidal waveform; per diode	-	120	A
		$t = 8.3\text{ ms}$; sinusoidal waveform; per diode	-	132	A
T_{stg}	storage temperature		-40	+150	$^{\circ}\text{C}$
T_j	junction temperature		-	150	$^{\circ}\text{C}$

5. Thermal characteristics

Table 4. Thermal characteristics

Symbol	Parameter	Conditions	Min	Typ	Max	Unit
$R_{th(j-h)}$	thermal resistance from junction to heatsink	with heatsink compound; per diode; see Figure 1	-	-	5.0	K/W
		with heatsink compound; both diodes conducting	-	-	4.0	K/W
		without heatsink compound; per diode	-	-	7.0	K/W
$R_{th(j-a)}$	thermal resistance from junction to ambient	in free air	-	55	-	K/W

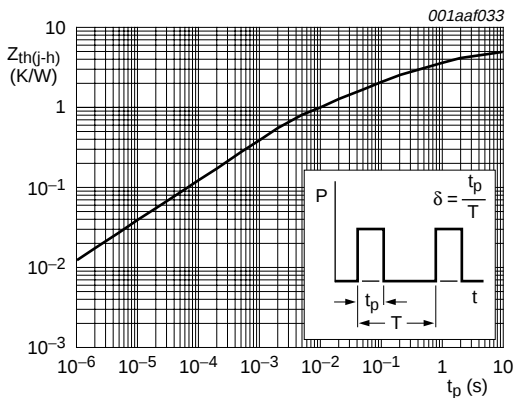


Fig 1. Transient thermal impedance from junction to heatsink as a function of pulse width

6. Isolation characteristics

Table 5. Isolation limiting values and characteristics

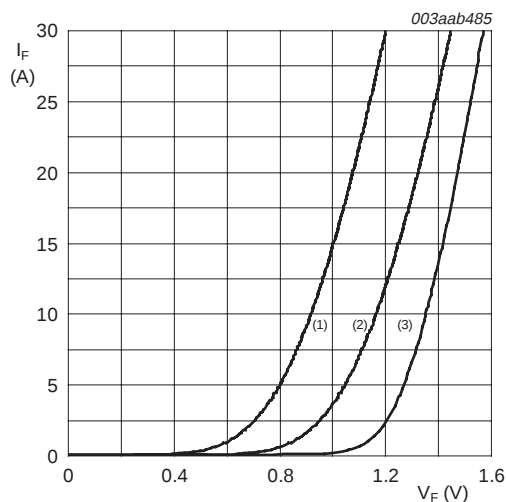
$T_h = 25\text{ }^{\circ}\text{C}$ unless otherwise specified.

Symbol	Parameter	Conditions	Min	Typ	Max	Unit
$V_{isol(RMS)}$	RMS isolation voltage	from all terminals to external heatsink; $f = 50\text{ Hz to }60\text{ Hz}$; sinusoidal waveform; relative humidity $\leq 65\%$; clean and dust free	-	-	2500	V
C_{isol}	isolation capacitance	from cathode to external heatsink; $f = 1\text{ MHz}$	-	10	-	pF

7. Characteristics

Table 6. Characteristics
T_j = 25 °C unless otherwise specified.

Symbol	Parameter	Conditions	Min	Typ	Max	Unit
Static characteristics						
V _F	forward voltage	I _F = 10 A; T _J = 150 °C; see Figure 2	-	0.92	1.16	V
		I _F = 10 A; see Figure 2	-	1.07	1.36	V
I _R	reverse current	V _R = 600 V	-	10	50	μA
		V _R = 600 V; T _J = 100 °C	-	0.2	0.6	mA
Dynamic characteristics						
Q _r	recovered charge	I _F = 2 A to V _R ≥ 30 V; dI _F /dt = 20 A/μs; see Figure 3	-	40	70	nC
t _{rr}	reverse recovery time	I _F = 1 A to V _R ≥ 30 V; dI _F /dt = 100 A/μs; see Figure 3	-	50	60	ns
I _{RM}	peak reverse recovery current	I _F = 10 A to V _R ≥ 30 V; dI _F /dt = 50 A/μs; T _J = 100 °C; see Figure 3	-	3	5	A
V _{FR}	forward recovery voltage	I _F = 10 A; dI _F /dt = 10 A/μs; see Figure 4	-	3.2	-	V



- (1) T_j = 150 °C; typical values
- (2) T_j = 150 °C; maximum values
- (3) T_j = 25 °C; maximum values

Fig 2. Forward current as a function of forward voltage

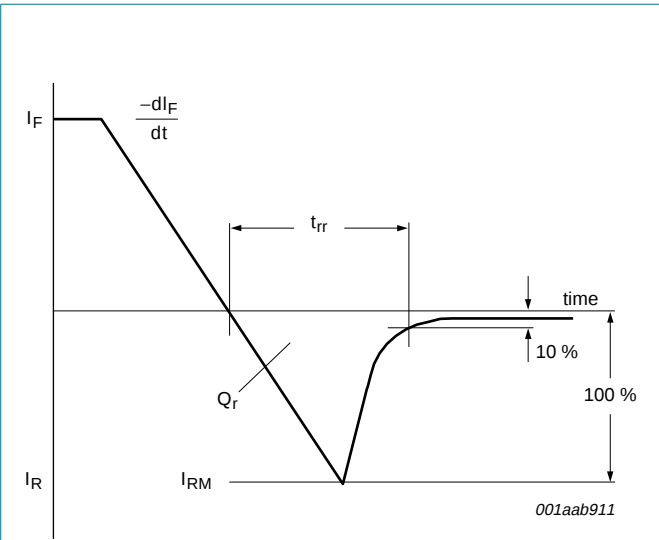


Fig 3. Reverse recovery definitions

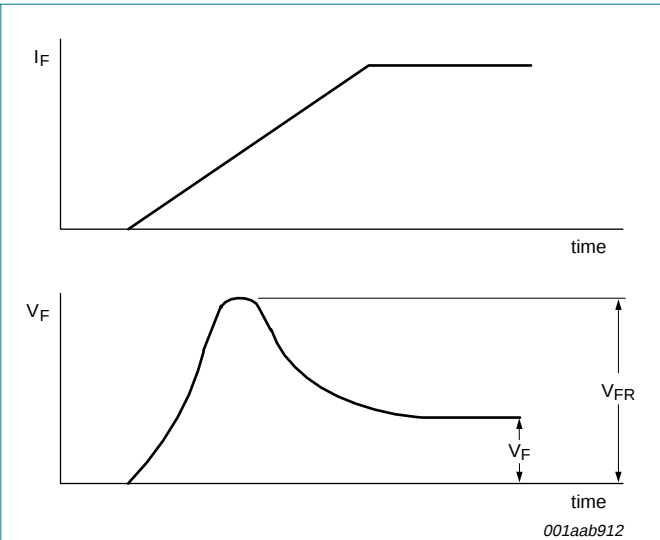
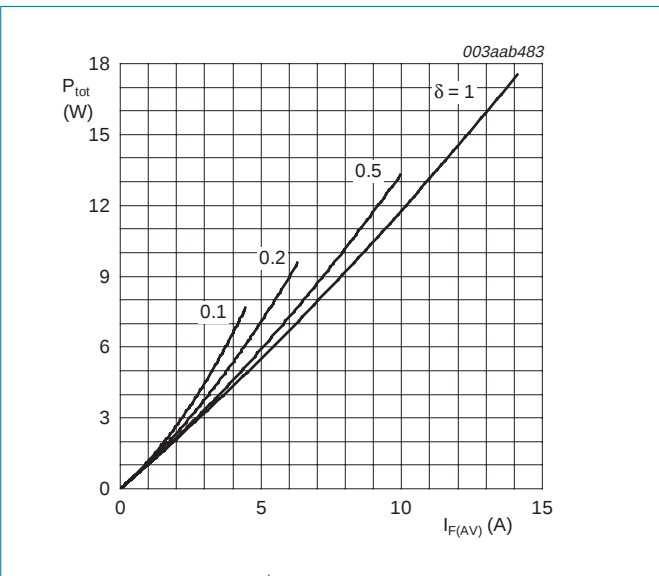
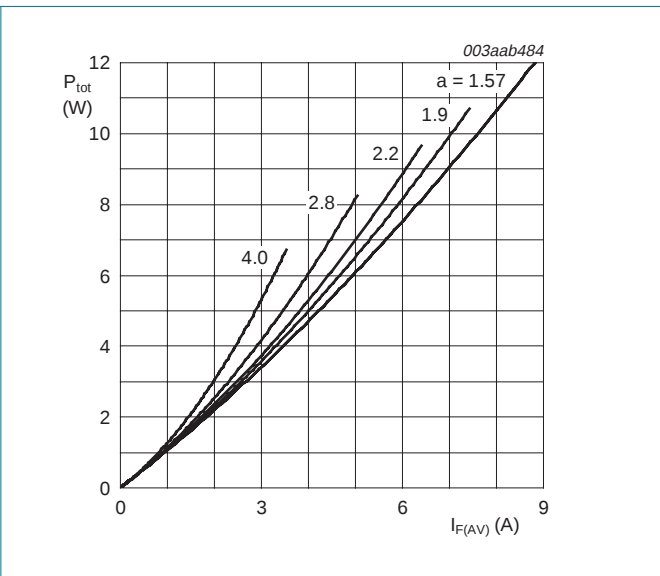


Fig 4. Forward recovery definitions



$I_{F(AV)} = I_{F(RMS)} \times \sqrt{\delta}$

Fig 5. Forward power dissipation as a function of average forward current; square waveform; maximum values; per diode



$a = \text{form factor} = I_{F(RMS)} / I_{F(AV)}$

Fig 6. Forward power dissipation as a function of average forward current; sinusoidal waveform; maximum values; per diode

8. Package outline

Plastic single-ended package; isolated heatsink mounted; 1 mounting hole; 3-lead TO-220 "full pack" SOT186A

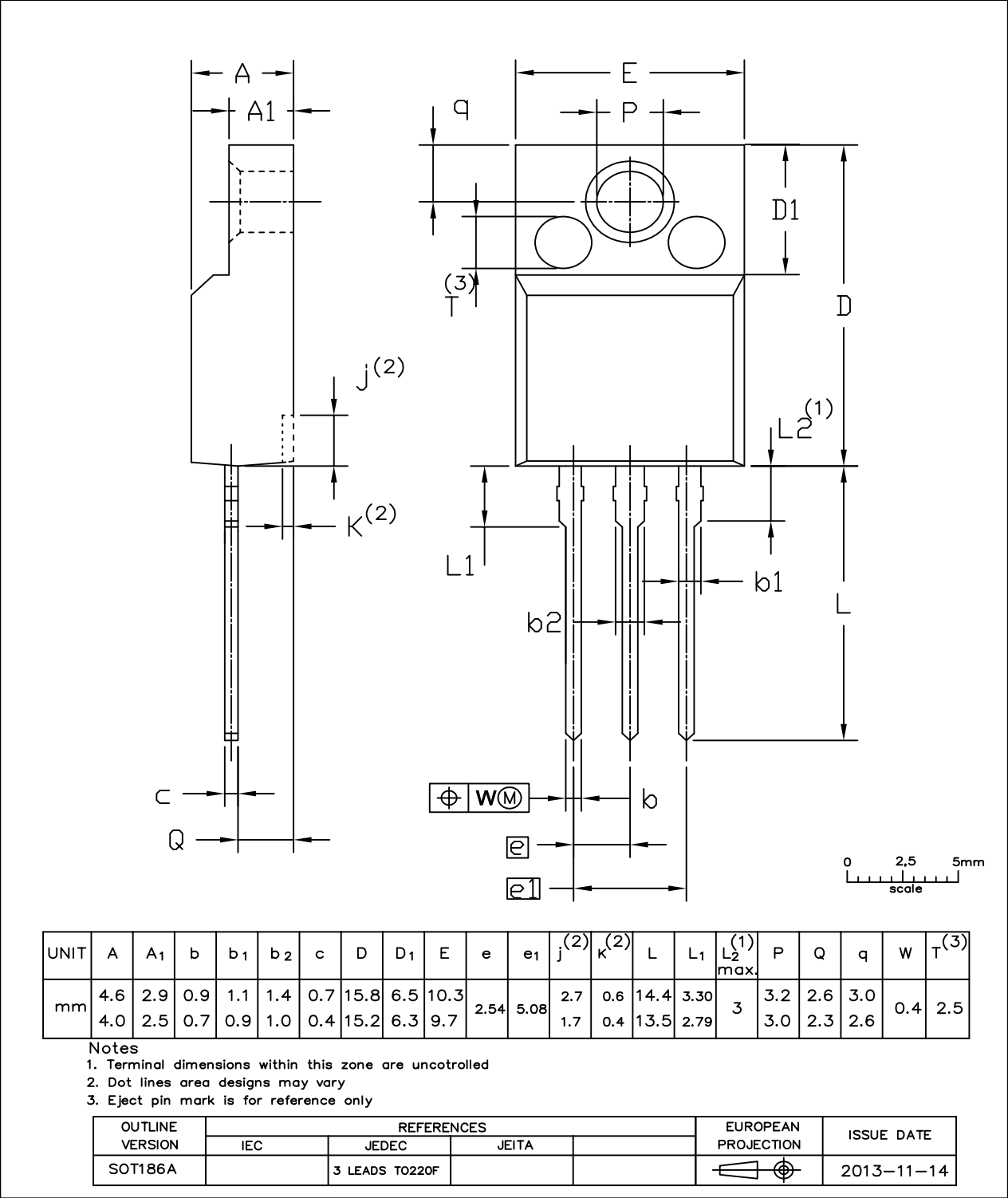


Fig 7. Package outline SOT186A (3-lead TO-220F)

9. Revision history

Table 7. Revision history

Document ID	Release date	Data sheet status	Change notice	Supersedes
BYV34X-600 V.2	20180928	Product data sheet	-	BYV34X-600_1
Modification:	Change from NXP version to WeEn Version			
BYV34X-600_1	20070913	Product data sheet	-	-

10. 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.

- [1] Please consult the most recently issued document before initiating or completing a design.
- [2] The term 'short data sheet' is explained in section "Definitions".
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