

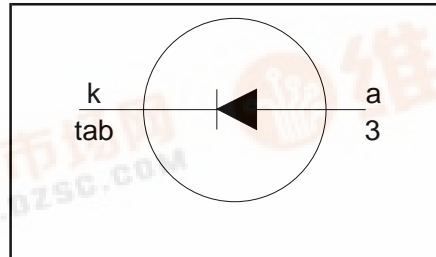
**Rectifier diodes
ultrafast, rugged**

BYV79EB series

FEATURES

- Low forward volt drop
- Fast switching
- Soft recovery characteristic
- Reverse surge capability
- High thermal cycling performance
- Low thermal resistance

SYMBOL



QUICK REFERENCE DATA

$V_R = 150\text{ V} / 200\text{ V}$
$V_F \leq 0.9\text{ V}$
$I_{F(AV)} = 14\text{ A}$
$I_{RRM} = 0.2\text{ A}$
$t_{tr} \leq 30\text{ ns}$

GENERAL DESCRIPTION

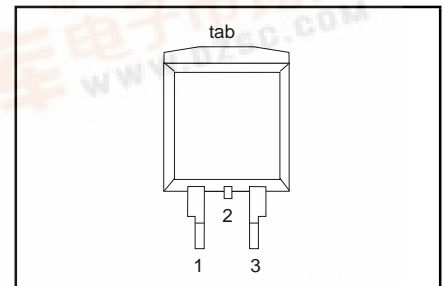
Ultra-fast, epitaxial rectifier diodes intended for use as output rectifiers in high frequency switched mode power supplies.

The BYV79EB series is supplied in the surface mounting SOT404 package.

PINNING

PIN	DESCRIPTION
1	no connection
2	cathode ¹
3	anode
tab	cathode

SOT404



LIMITING VALUES

Limiting values in accordance with the Absolute Maximum System (IEC 134).

SYMBOL	PARAMETER	CONDITIONS	BYV79EB		UNIT
			MIN.	MAX.	
V_{RRM}	Peak repetitive reverse voltage	$T_{mb} \leq 145\text{ }^\circ\text{C}$	-	-150	V
V_{RWM}	Crest working reverse voltage		-	150	V
V_R	Continuous reverse voltage		-	150	V
$I_{F(AV)}$	Average rectified forward current ²	square wave $\delta = 0.5; T_{mb} \leq 120\text{ }^\circ\text{C}$	-	14	A
I_{FRM}	Repetitive peak forward current per diode	$t = 25\text{ }\mu\text{s}; \delta = 0.5;$ $T_{mb} \leq 120\text{ }^\circ\text{C}$	-	28	A
I_{FSM}	Non-repetitive peak forward current	$t = 10\text{ ms}$	-	150	A
		$t = 8.3\text{ ms}$ sinusoidal; with reapplied	-	160	A
I_{RRM}	Repetitive peak reverse current	$V_{RRM(max)}$ $t_p = 2\text{ }\mu\text{s}; \delta = 0.001$	-	0.2	A
I_{RSM}	Non-repetitive peak reverse current	$t_p = 100\text{ }\mu\text{s}$	-	0.2	A
T_{stg}	Storage temperature		-40	150	$^\circ\text{C}$
T_j	Operating junction temperature		-	150	$^\circ\text{C}$

1. It is not possible to make connection to pin 2 of the SOT404 package
2. Neglecting switching and reverse current losses.

ESD LIMITING VALUE

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
V_C	Electrostatic discharge capacitor voltage	Human body model; $C = 250\text{ pF}; R = 1.5\text{ k}\Omega$	-	8	kV



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THERMAL RESISTANCES

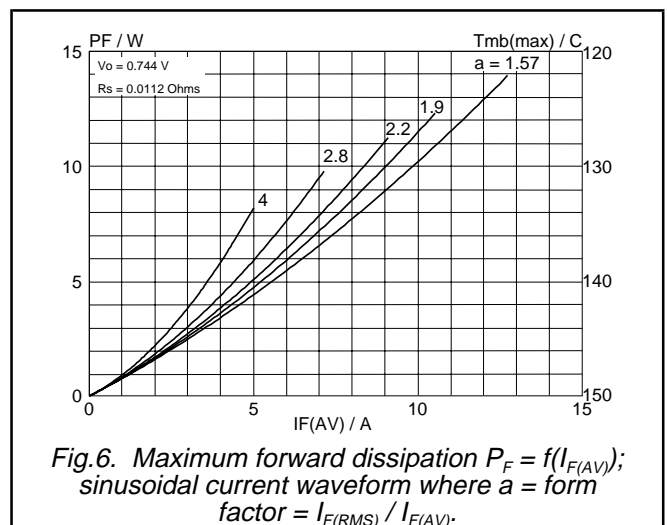
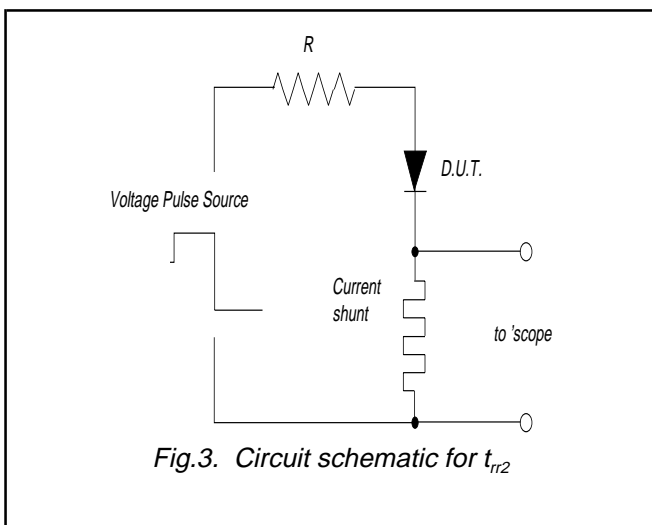
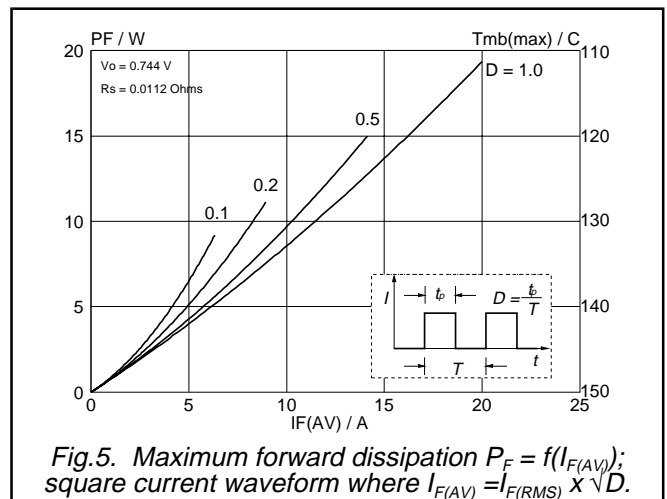
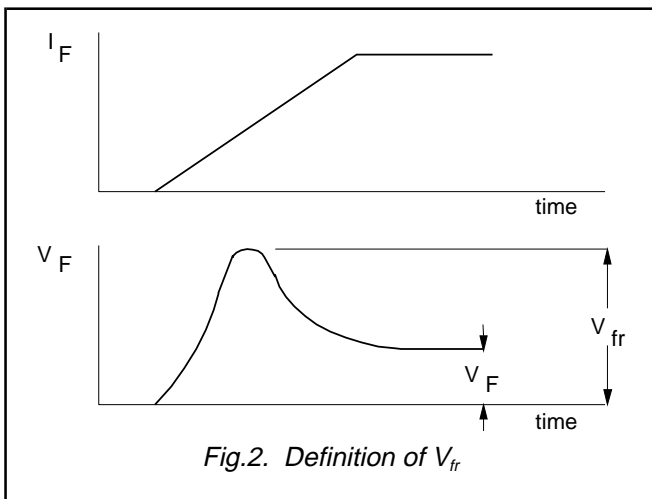
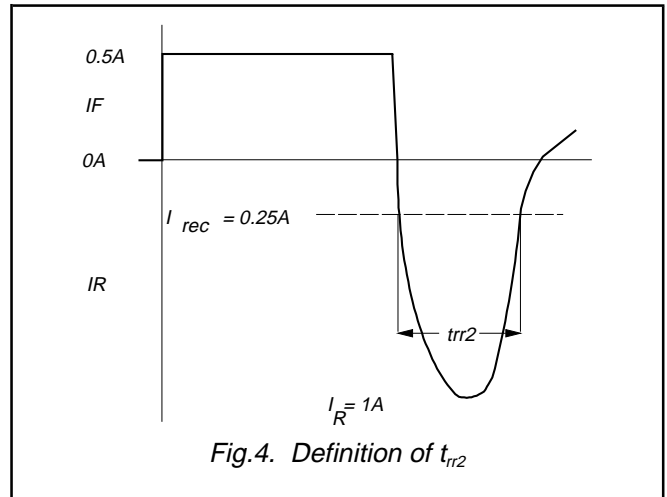
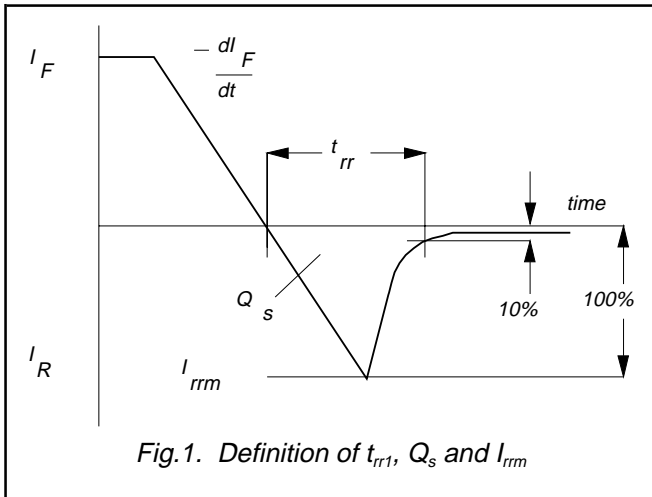
SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT
$R_{th\ j-mb}$	Thermal resistance junction to mounting base		-	-	2	K/W
$R_{th\ j-a}$	Thermal resistance junction to ambient	minimum footprint, FR4 board	-	50	-	K/W

ELECTRICAL CHARACTERISTICS
 $T_j = 25\text{ °C}$ unless otherwise stated

SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT
V_F	Forward voltage	$I_F = 14\text{ A}; T_j = 150\text{ °C}$	-	0.83	0.90	V
		$I_F = 14\text{ A}$	-	0.95	1.05	V
		$I_F = 50\text{ A}$	-	1.2	1.4	V
I_R	Reverse current	$V_R = V_{RRM}; T_j = 100\text{ °C}$	-	0.5	1.3	mA
		$V_R = V_{RRM}$	-	5	50	μA
Q_s	Reverse recovery charge	$I_F = 2\text{ A}; V_R \geq 30\text{ V}; -di_F/dt = 20\text{ A}/\mu\text{s}$	-	6	15	nC
t_{rr1}	Reverse recovery time	$I_F = 1\text{ A}; V_R \geq 30\text{ V}; -di_F/dt = 100\text{ A}/\mu\text{s}$	-	20	30	ns
t_{rr2}	Reverse recovery time	$I_F = 0.5\text{ A to } I_R = 1\text{ A}; I_{rec} = 0.25\text{ A}$	-	13	22	ns
V_{fr}	Forward recovery voltage	$I_F = 1\text{ A}; di_F/dt = 10\text{ A}/\mu\text{s}$	-	1	-	V

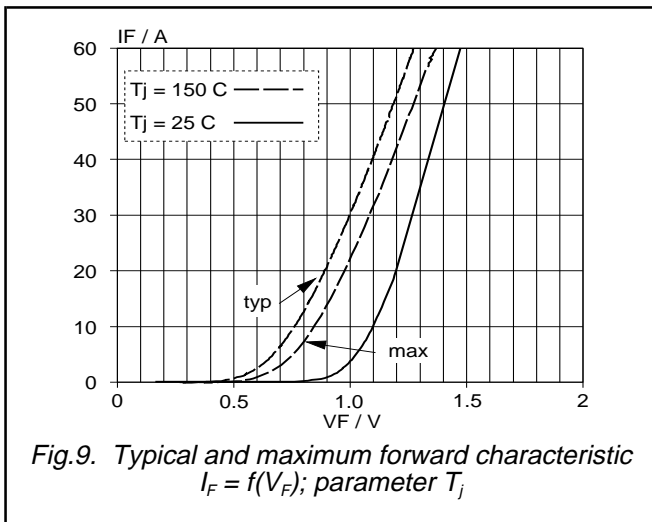
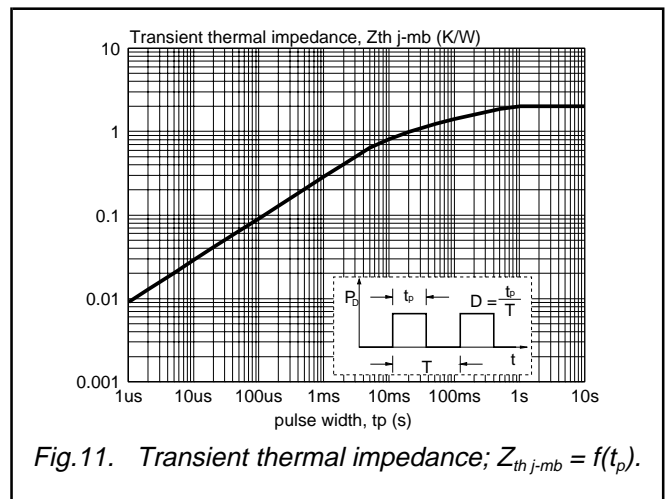
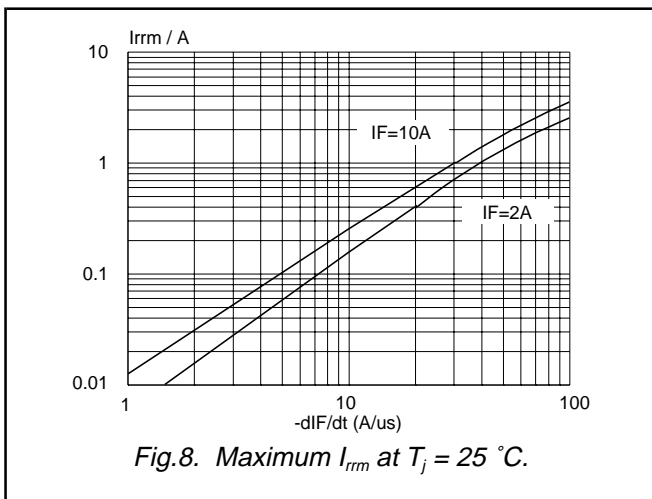
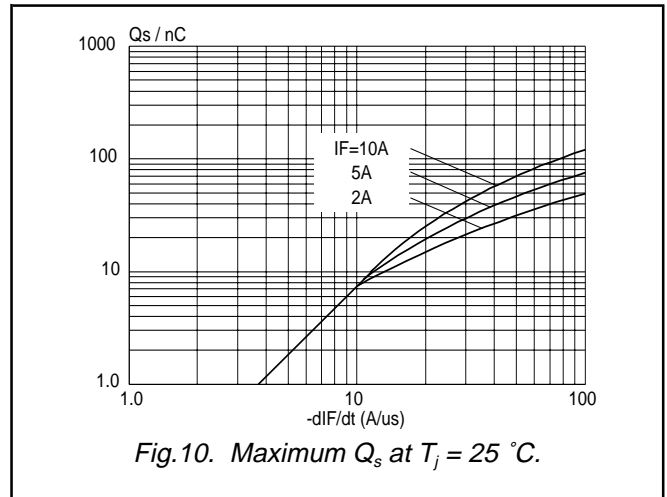
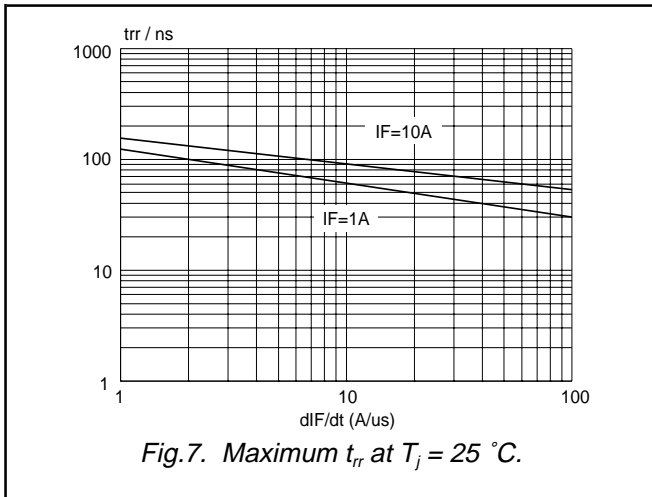
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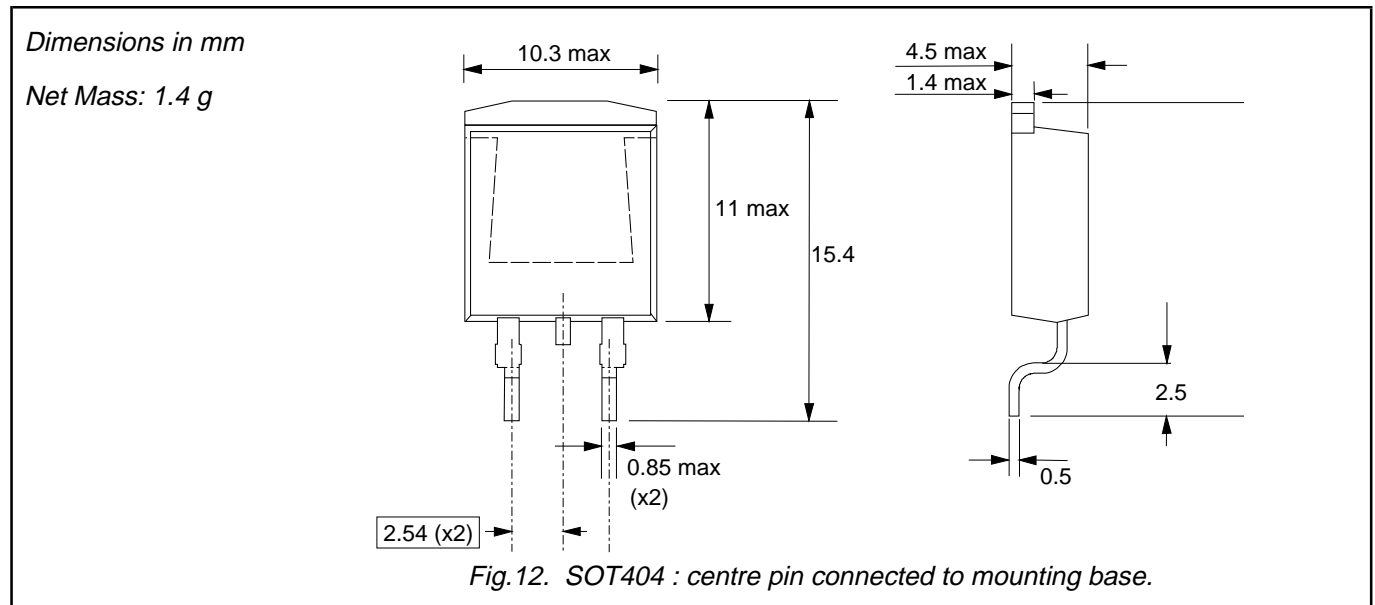
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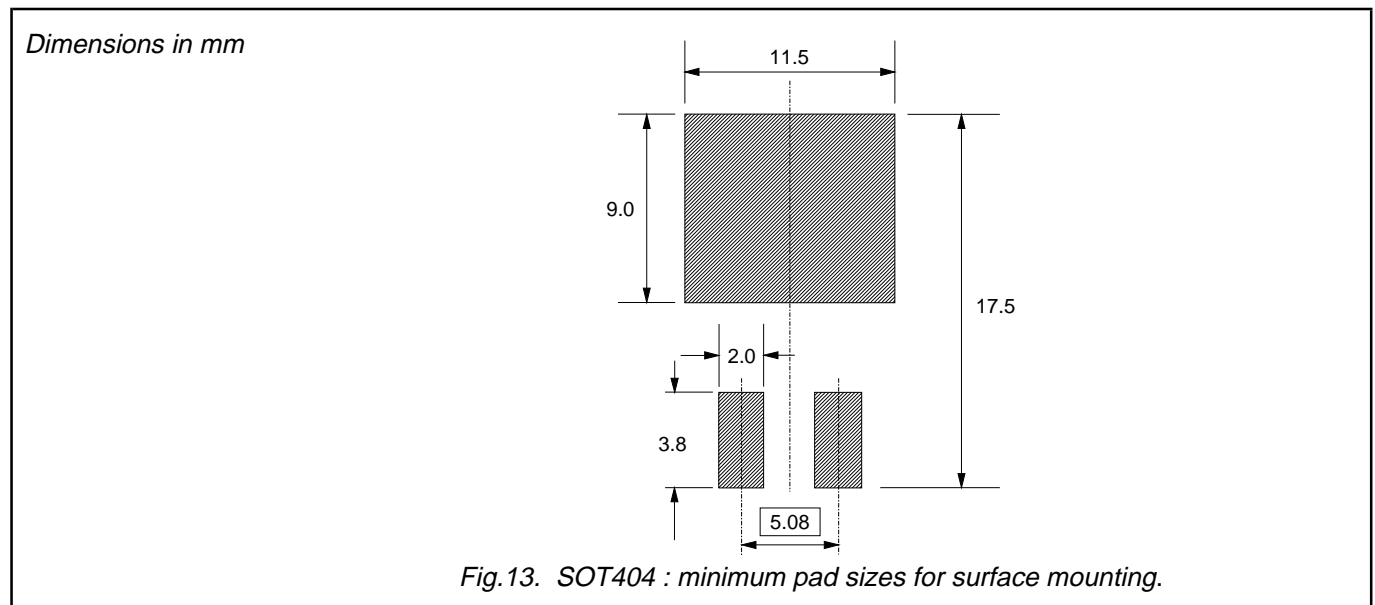
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MECHANICAL DATA



MOUNTING INSTRUCTIONS



Notes

1. Plastic meets UL94 V0 at 1/8".

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DEFINITIONS

Data sheet status	
Objective specification	This data sheet contains target or goal specifications for product development.
Preliminary specification	This data sheet contains preliminary data; supplementary data may be published later.
Product specification	This data sheet contains final product specifications.
Limiting values	
Limiting values are given in accordance with the Absolute Maximum Rating System (IEC 134). Stress above one or more of the limiting values may cause permanent damage to the device. These are stress ratings only and operation of the device at these or at any other conditions above those given in the Characteristics sections of this specification is not implied. Exposure to limiting values for extended periods may affect device reliability.	
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