

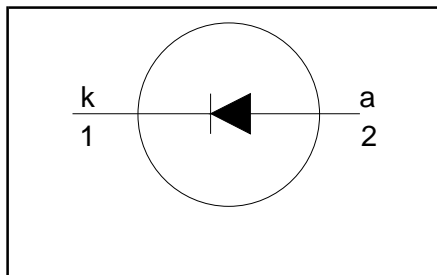
**Rectifier diodes
ultrafast**

BYR29F series

FEATURES

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

SYMBOL



QUICK REFERENCE DATA

$V_R = 500\text{ V} / 600\text{ V} / 700\text{ V} / 800\text{ V}$
$V_F \leq 1.5\text{ V}$
$I_{F(AV)} = 8\text{ A}$
$t_{tr} \leq 75\text{ ns}$

GENERAL DESCRIPTION

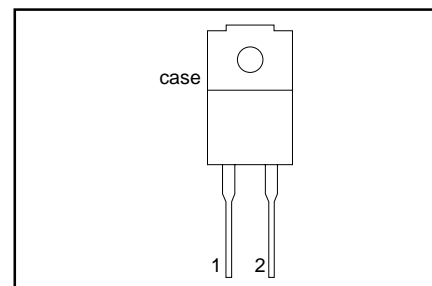
Ultra-fast, epitaxial rectifier diodes intended for use as output rectifiers in high frequency switched mode power supplies.

The BYR29F series is supplied in the conventional leaded SOD100 package.

PINNING

PIN	DESCRIPTION
1	cathode
2	anode
tab	isolated

SOD100



LIMITING VALUES

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

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.				UNIT
				-500	-600	-700	-800	
V_{RRM}	Peak repetitive reverse voltage	BYR29F $T_{hs} \leq 136\text{ }^\circ\text{C}$	-	500	600	700	800	V
V_{RWM}	Crest working reverse voltage		-	500	600	700	800	V
V_R	Continuous reverse voltage		-	500	600	700	800	V
$I_{F(AV)}$	Average forward current ¹	square wave; $\delta = 0.5$; $T_{hs} \leq 73\text{ }^\circ\text{C}$	-	8				A
I_{FRM}	Repetitive peak forward current	$t = 25\text{ }\mu\text{s}$; $\delta = 0.5$; $T_{hs} \leq 73\text{ }^\circ\text{C}$	-	16				A
I_{FSM}	Non-repetitive peak forward current	$t = 10\text{ ms}$	-	60				A
		$t = 8.3\text{ ms}$	-	66				A
T_{stg}	Storage temperature	sinusoidal; with reappplied $V_{RRM(max)}$	-40	150				$^\circ\text{C}$
T_j	Operating junction temperature		-	150				$^\circ\text{C}$

¹ Neglecting switching and reverse current losses

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ISOLATION LIMITING VALUE & CHARACTERISTIC

$T_{hs} = 25\text{ °C}$ unless otherwise specified

SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT
V_{isol}	Repetitive peak voltage from both terminals to external heatsink	R.H. \leq 65% ; clean and dustfree	-		1500	V
C_{isol}	Capacitance from cathode to external heatsink	$f = 1\text{ MHz}$	-	12	-	pF

THERMAL RESISTANCES

SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT
$R_{th\ j-hs}$	Thermal resistance junction to heatsink	with heatsink compound	-	-	5.5	K/W
$R_{th\ j-a}$	Thermal resistance junction to ambient	without heatsink compound in free air.	-	55	7.2	K/W

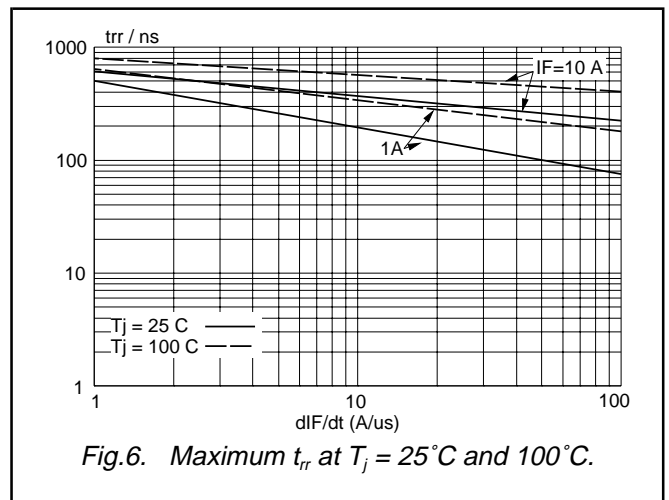
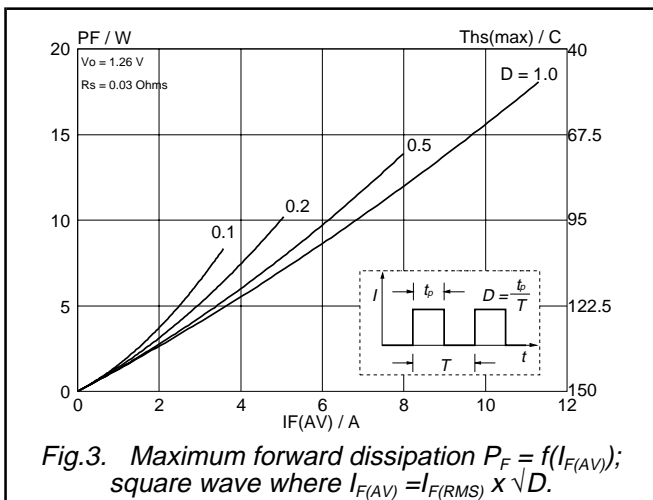
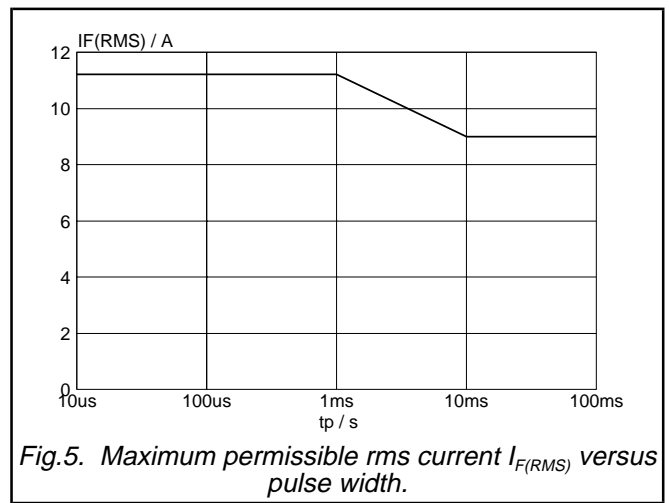
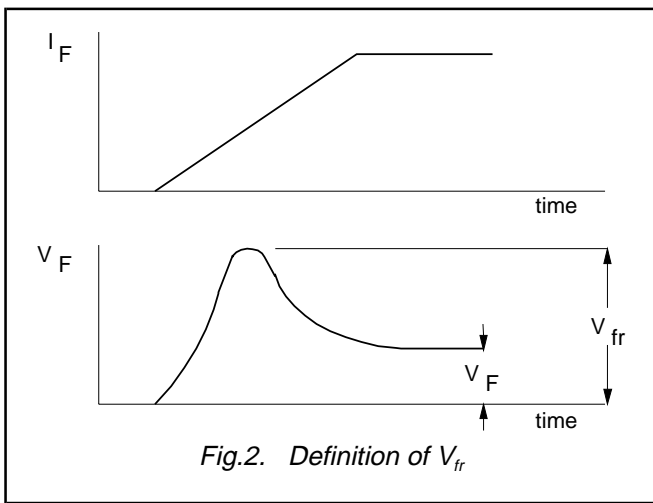
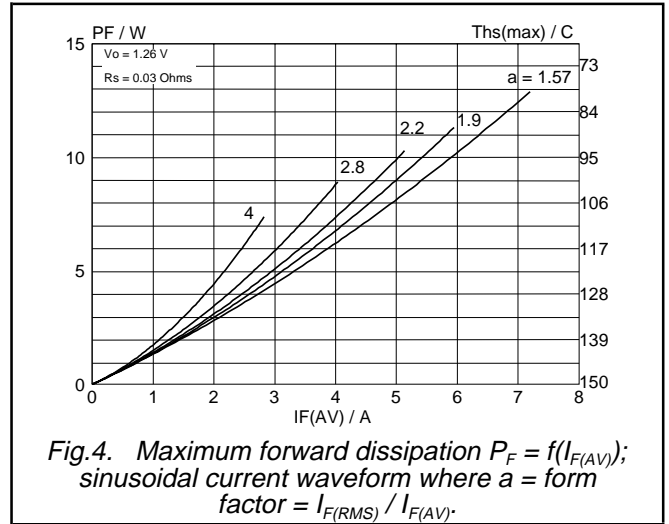
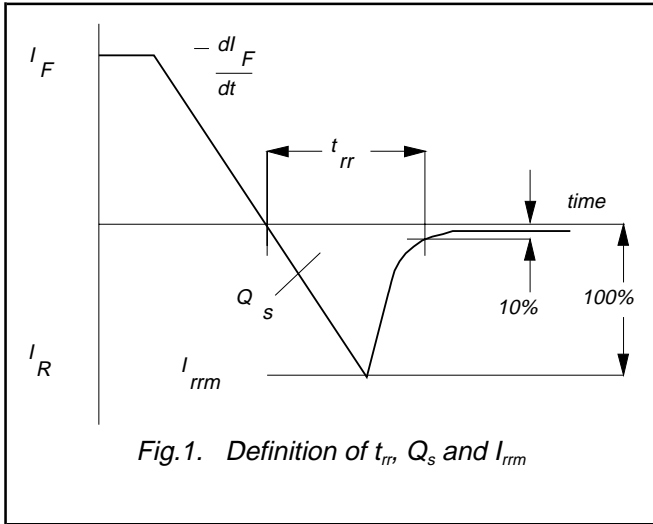
ELECTRICAL CHARACTERISTICS

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

SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT
V_F	Forward voltage	$I_F = 8\text{ A}$; $T_j = 150\text{ °C}$	-	1.07	1.50	V
		$I_F = 20\text{ A}$	-	1.75	1.95	V
I_R	Reverse current	$V_R = V_{RRM}$	-	1.0	10	μA
		$V_R = V_{RRM}$; $T_j = 100\text{ °C}$	-	0.1	0.2	mA
Q_s	Reverse recovery charge	$I_F = 2\text{ A}$ to $V_R \geq 30\text{ V}$; $di_F/dt = 20\text{ A}/\mu\text{s}$	-	150	200	nC
t_{rr}	Reverse recovery time	$I_F = 1\text{ A}$ to $V_R \geq 30\text{ V}$; $di_F/dt = 100\text{ A}/\mu\text{s}$	-	60	75	ns
I_{rrm}	Peak reverse recovery current	$I_F = 10\text{ A}$ to $V_R \geq 30\text{ V}$; $di_F/dt = 50\text{ A}/\mu\text{s}$; $T_j = 100\text{ °C}$	-	-	6	A
V_{fr}	Forward recovery voltage	$I_F = 10\text{ A}$; $di_F/dt = 10\text{ A}/\mu\text{s}$	-	5.0	-	V

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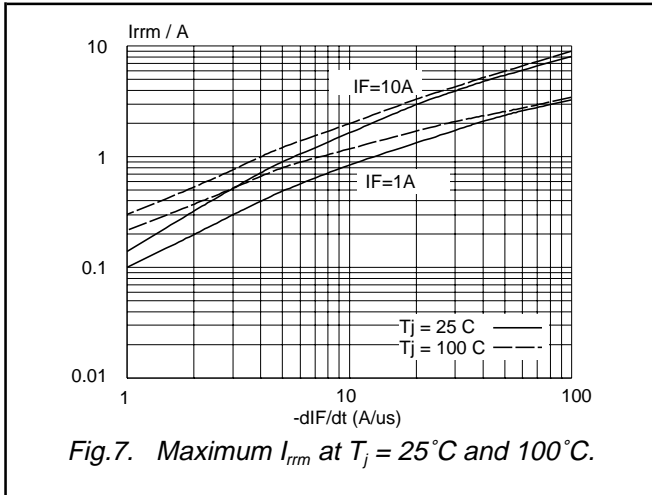


Fig.7. Maximum I_{rrm} at $T_j = 25^\circ C$ and $100^\circ C$.

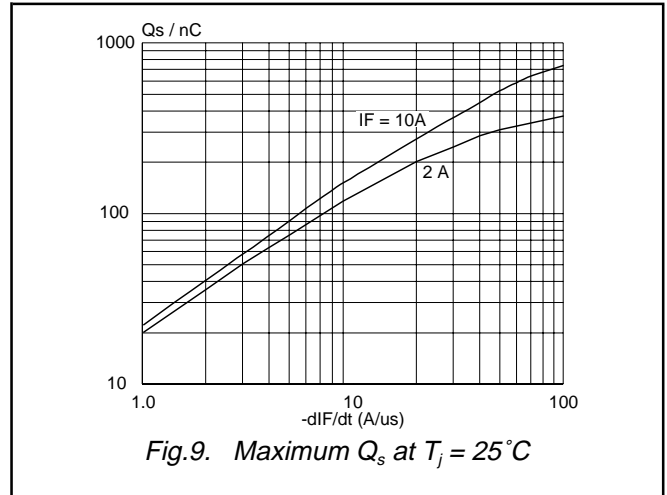


Fig.9. Maximum Q_s at $T_j = 25^\circ C$

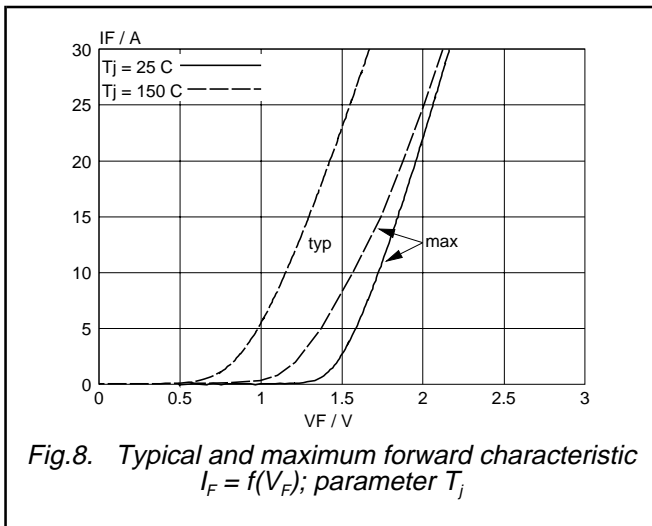


Fig.8. Typical and maximum forward characteristic $I_F = f(V_F)$; parameter T_j

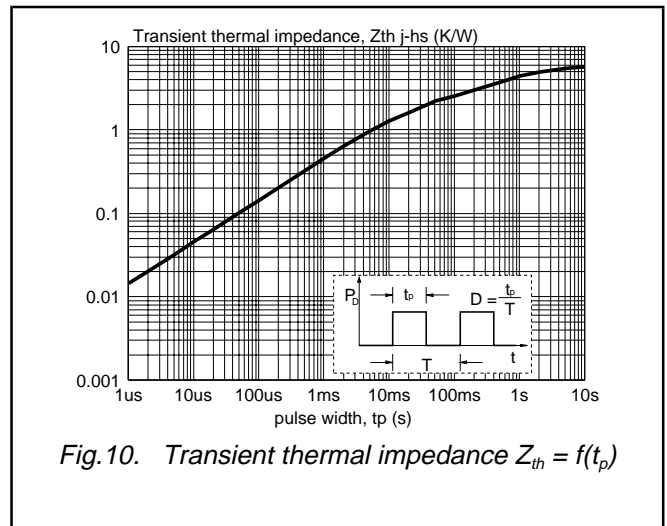
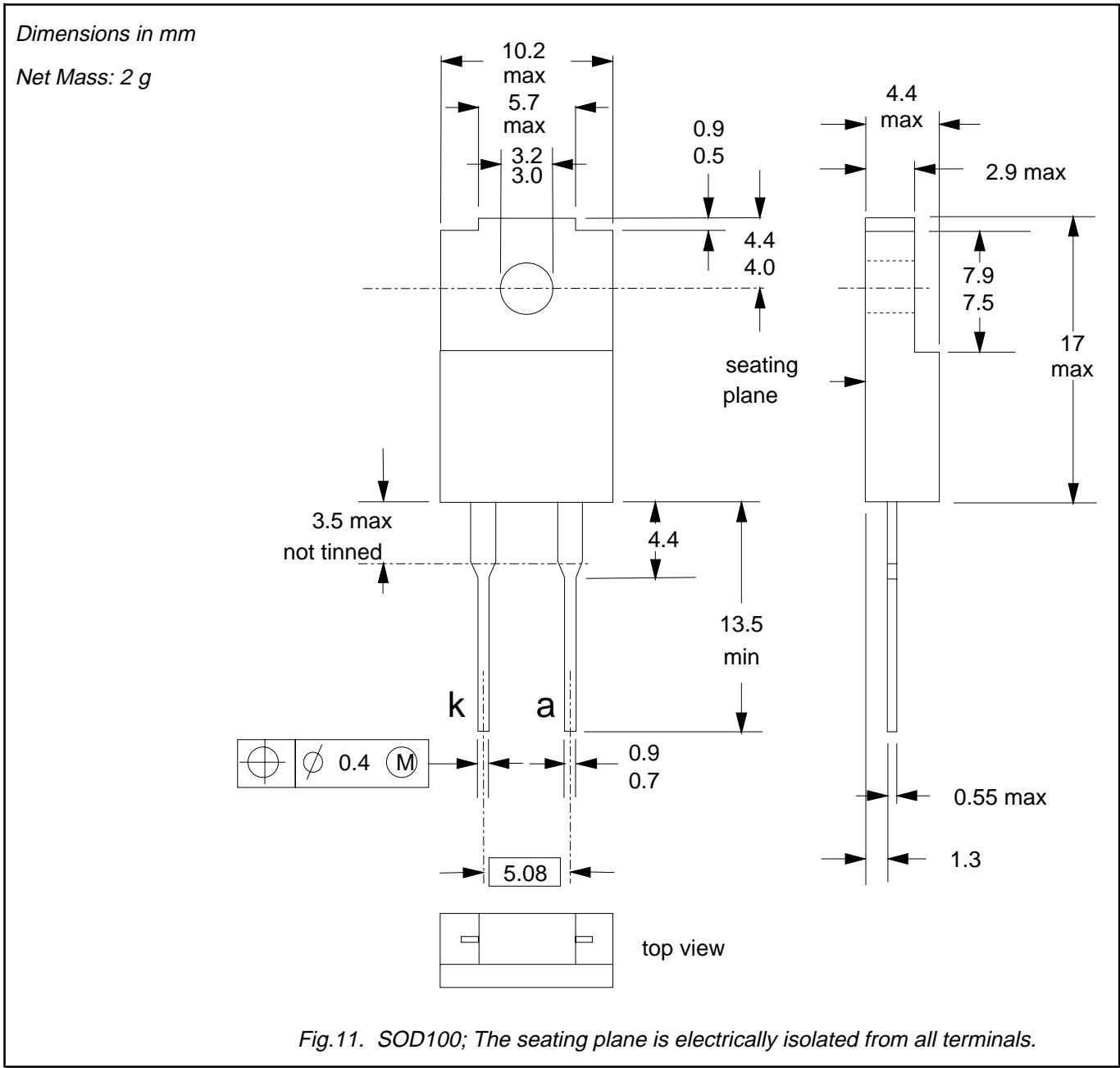


Fig.10. Transient thermal impedance $Z_{th} = f(t_p)$

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MECHANICAL DATA



Notes

1. Refer to mounting instructions for F-pack envelopes.
2. Epoxy meets UL94 V0 at 1/8".

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BYR29F series**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.	
Application information	
Where application information is given, it is advisory and does not form part of the specification.	
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