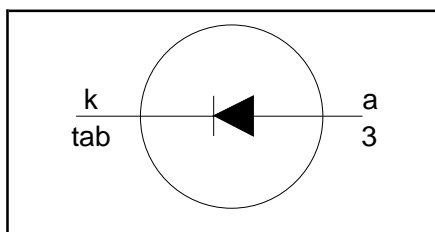


Rectifier diode ultrafast, low switching loss

BYC5B-600**FEATURES**

- Extremely fast switching
- Low reverse recovery current
- Low thermal resistance
- Reduces switching losses in associated MOSFET

SYMBOL**QUICK REFERENCE DATA**

$V_R = 600\text{ V}$
$V_F \leq 1.75\text{ V}$
$I_{F(AV)} = 5\text{ A}$
$t_{rr} = 19\text{ ns (typ)}$

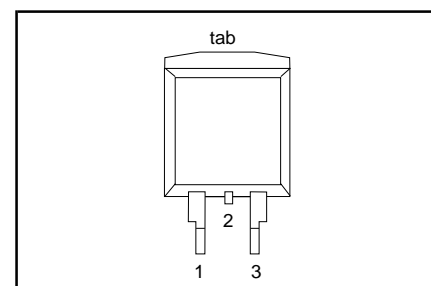
APPLICATIONS

- Active power factor correction
- Half-bridge lighting ballasts
- Half-bridge/ full-bridge switched mode power supplies.

The BYC5B-600 is supplied in the SOT404 surface mounting 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	MIN.	MAX.	UNIT
V_{RRM}	Peak repetitive reverse voltage	$T_{mb} \leq 110\text{ }^{\circ}\text{C}$ $\delta = 0.5$; with reapplied $V_{RRM(max)}$; $T_{mb} \leq 89\text{ }^{\circ}\text{C}$ $\delta = 0.5$; with reapplied $V_{RRM(max)}$; $T_{mb} \leq 89\text{ }^{\circ}\text{C}$	-	600	V
V_{RWM}	Crest working reverse voltage		-	600	V
V_R	Continuous reverse voltage		-	500	V
$I_{F(AV)}$	Average forward current		-	5	A
I_{FRM}	Repetitive peak forward current		-	10	A
I_{FSM}	Non-repetitive peak forward current.	$t = 10\text{ ms}$	-	40	A
		$t = 8.3\text{ ms}$ sinusoidal; $T_j = 150\text{ }^{\circ}\text{C}$ prior to surge with reapplied $V_{RWM(max)}$	-	44	A
T_{stg}	Storage temperature		-40	150	$^{\circ}\text{C}$
T_j	Operating junction temperature		-	150	$^{\circ}\text{C}$

THERMAL RESISTANCES

SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT
$R_{th\ j-mb}$	Thermal resistance junction to mounting base	minimum footprint, FR4 board	-	-	2.5	K/W
$R_{th\ j-a}$	Thermal resistance junction to ambient		-	50	-	K/W

¹ it is not possible to make connection to pin 2 of the SOT404 package

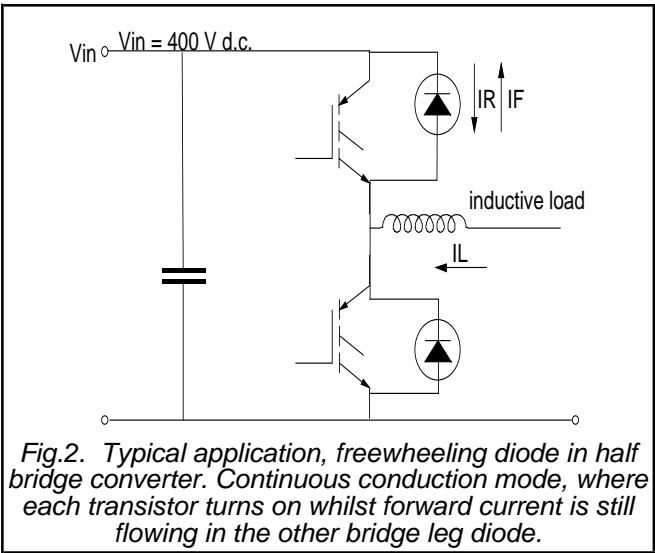
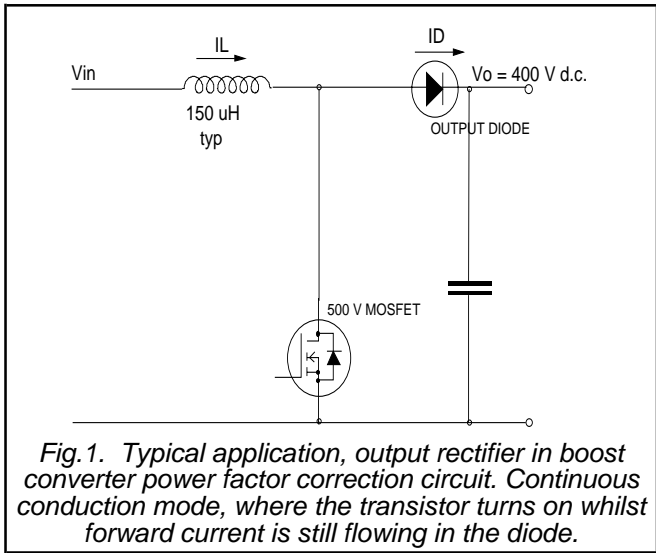
Rectifier diode
ultrafast, low switching loss

BYC5B-600

ELECTRICAL CHARACTERISTICS

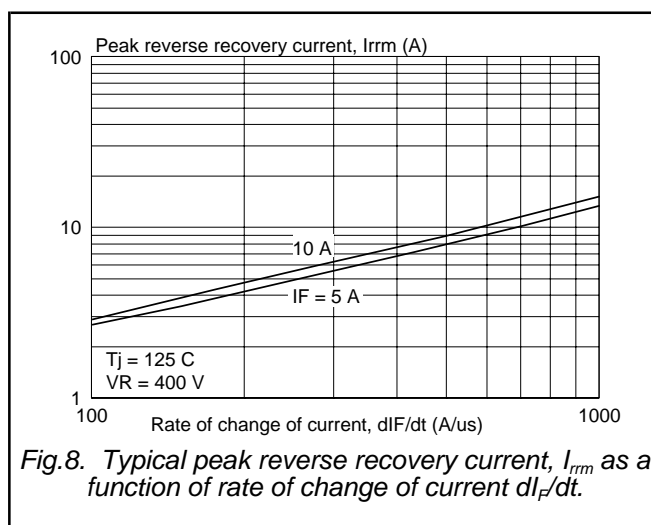
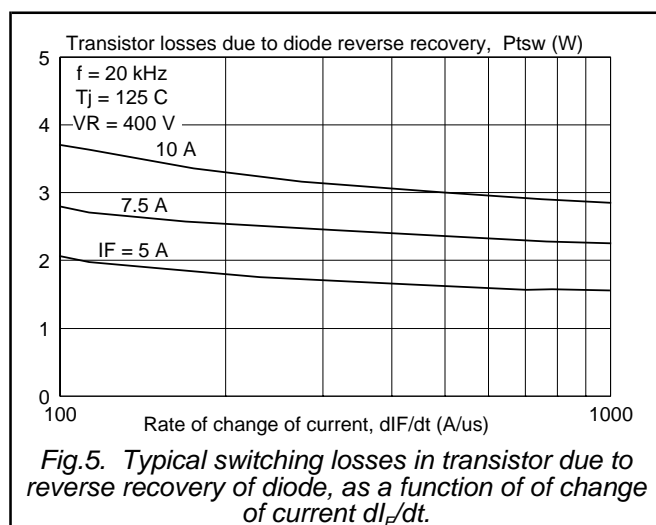
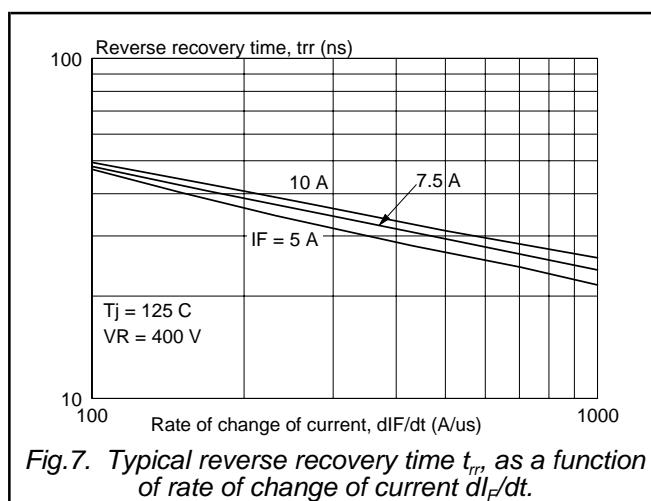
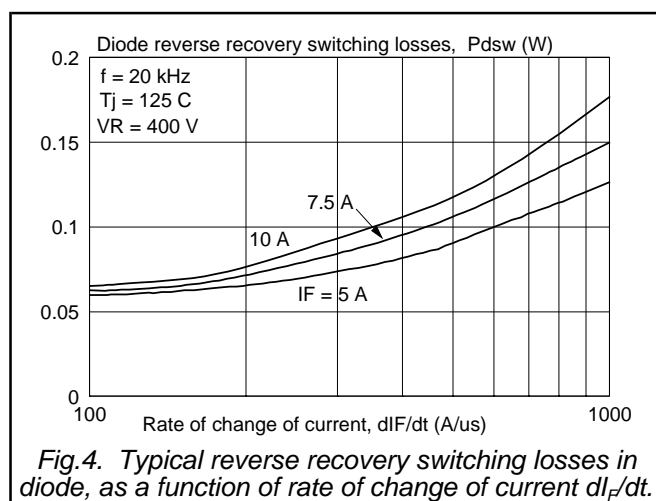
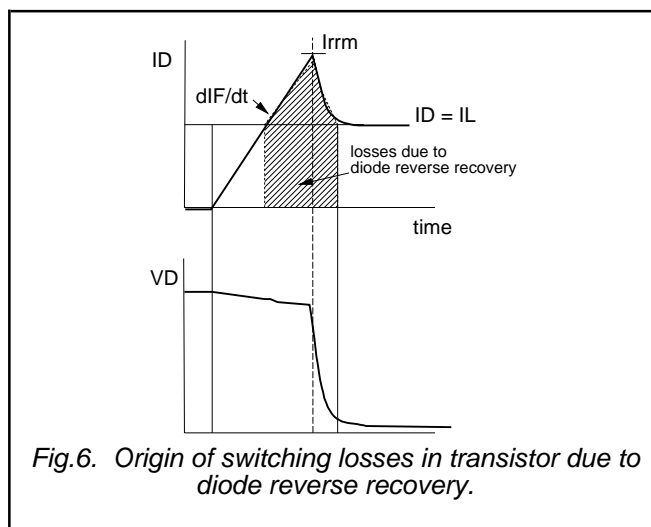
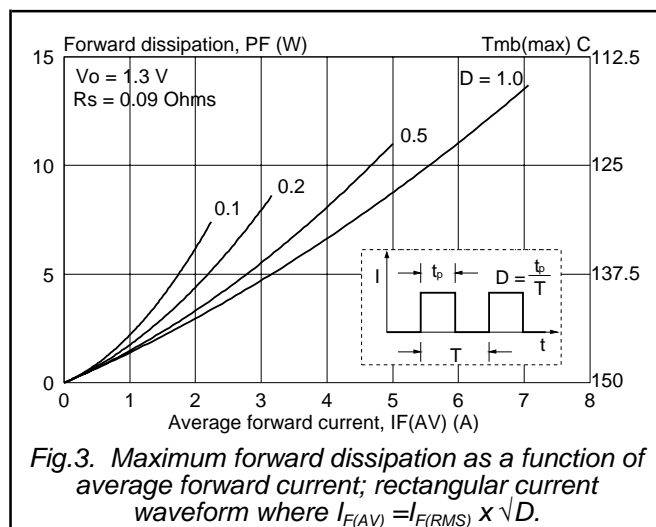
T_j = 25 °C unless otherwise stated

SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT
V _F	Forward voltage	I _F = 5 A; T _j = 150 °C	-	1.4	1.75	V
		I _F = 10 A; T _j = 150 °C	-	1.75	2.2	V
I _R	Reverse current	I _F = 5 A;	-	2.0	2.9	V
		V _R = 600 V	-	9	100	μA
		V _R = 500 V; T _j = 100 °C	-	0.9	3.0	mA
t _{rr}	Reverse recovery time	I _F = 1 A; V _R = 30 V; dI _F /dt = 50 A/μs	-	30	50	ns
t _{rr}	Reverse recovery time	I _F = 5 A; V _R = 400 V;	-	19	-	ns
		dI _F /dt = 500 A/μs	-			
t _{rr}	Reverse recovery time	I _F = 5 A; V _R = 400 V;	-	25	30	ns
		dI _F /dt = 500 A/μs; T _j = 100 °C	-			
I _{rrm}	Peak reverse recovery current	I _F = 5 A; V _R = 400 V;	-	0.7	3	A
		dI _F /dt = 50 A/μs; T _j = 125 °C	-			
I _{rrm}	Peak reverse recovery current	I _F = 5 A; V _R = 400 V;	-	8	11	A
		dI _F /dt = 500 A/μs; T _j = 125 °C	-			
V _{fr}	Forward recovery voltage	I _F = 10 A; dI _F /dt = 100 A/μs	-	9	11	V



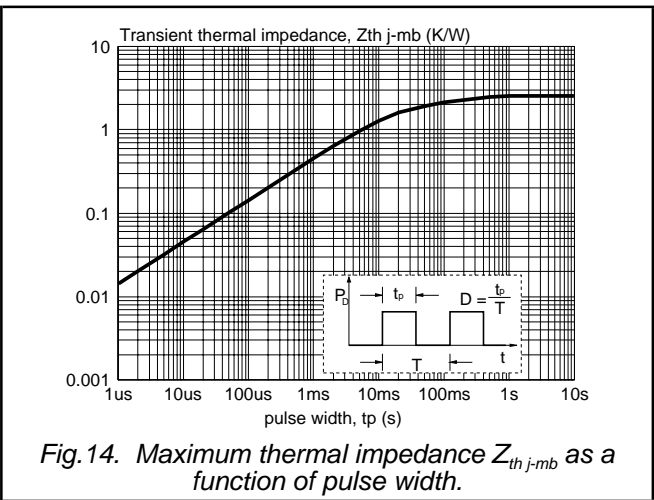
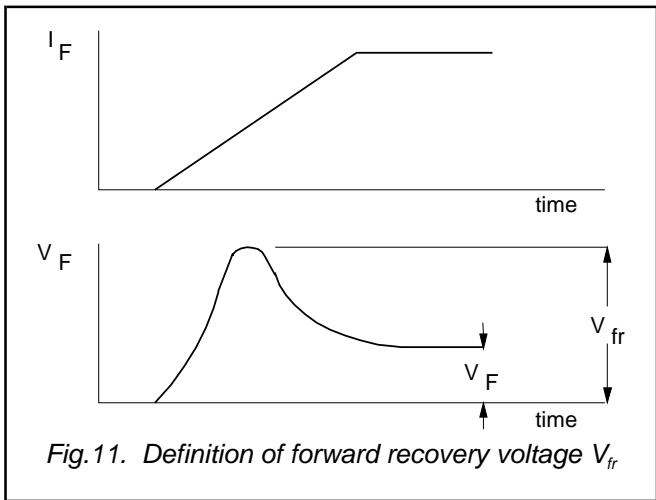
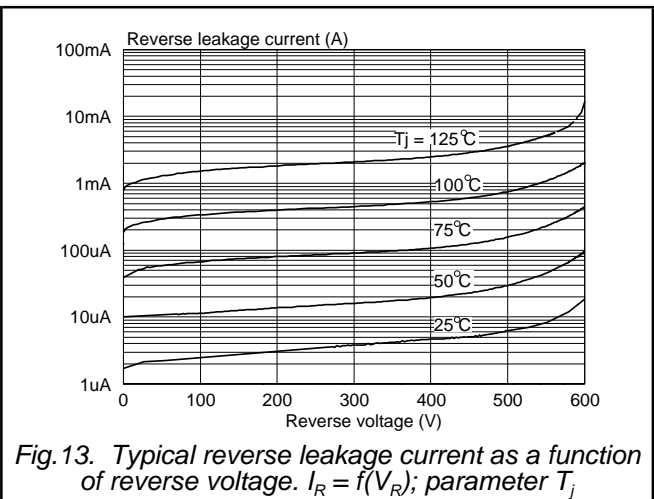
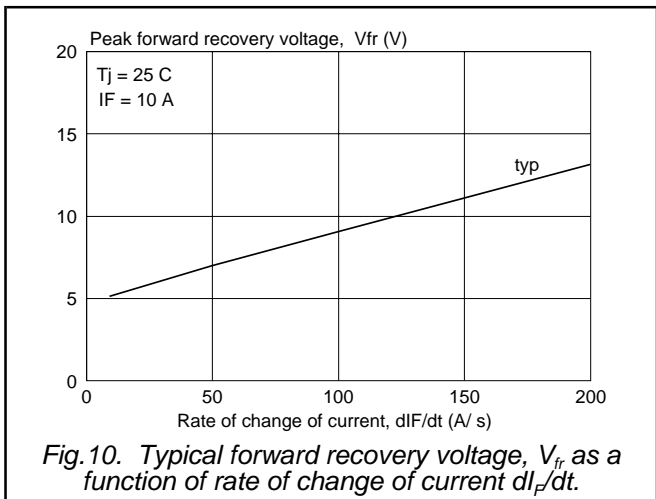
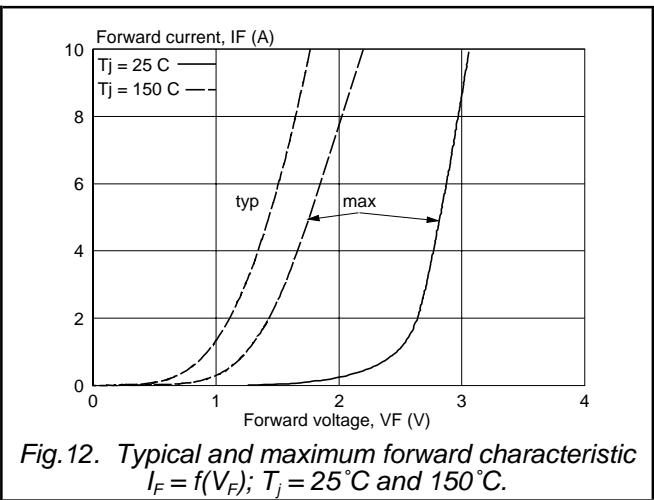
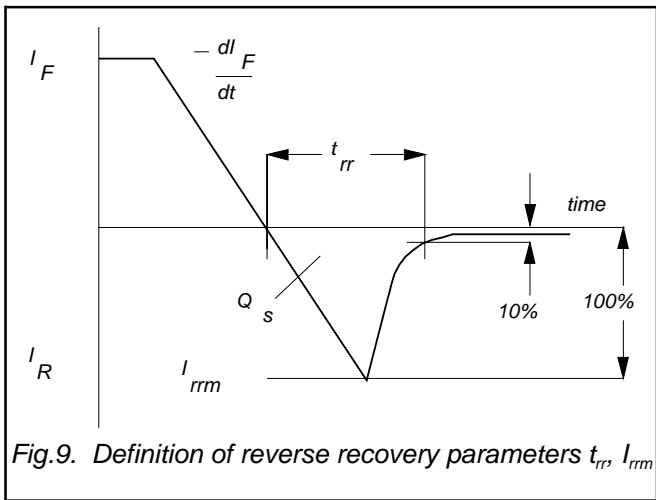
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BYC5B-600



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MECHANICAL DATA

Dimensions in mm

Net Mass: 1.4 g

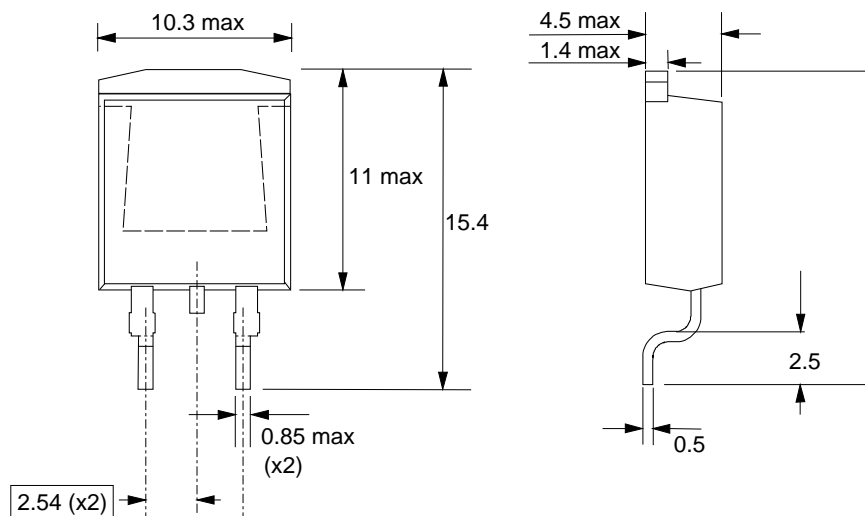


Fig. 15. SOT404 : centre pin connected to mounting base.

MOUNTING INSTRUCTIONS

Dimensions in mm

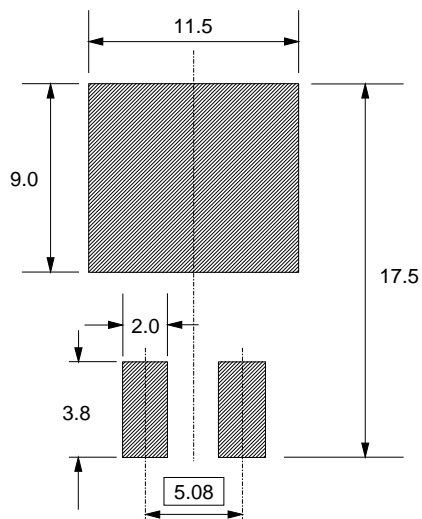


Fig. 16. SOT404 : soldering pattern for surface mounting.

Notes

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

Rectifier diode ultrafast, low switching loss

BYC5B-600

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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