

DATA SHEET

BYC8B-600

Rectifier diode

ultrafast, low switching loss

Product specification

March 2001



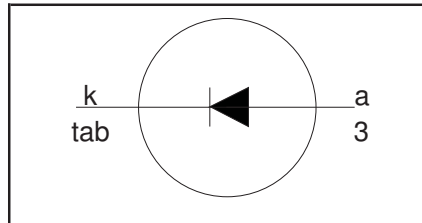
WeEn

WeEn Semiconductors

Rectifier diode ultrafast, low switching loss

BYC8B-600**FEATURES**

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

SYMBOL**QUICK REFERENCE DATA**

$$V_R = 600 \text{ V}$$

$$V_F \leq 1.85 \text{ V}$$

$$I_{F(AV)} = 8 \text{ A}$$

$$t_{rr} = 19 \text{ ns (typ)}$$

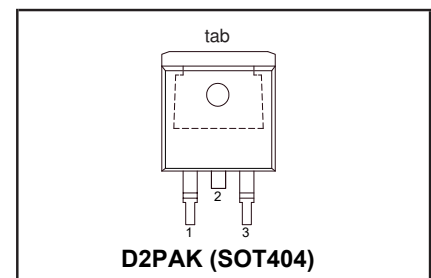
APPLICATIONS

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

The BYC8B-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		-	600	V
V_{RWM}	Crest working reverse voltage		-	600	V
V_R	Continuous reverse voltage		-	500	V
$I_{F(AV)}$	Average forward current	$T_{mb} \leq 110^\circ\text{C}$ $\delta = 0.5$; with reappplied $V_{RRM(max)}$;	-	8	A
I_{FRM}	Repetitive peak forward current	$T_{mb} \leq 82^\circ\text{C}$ $\delta = 0.5$; with reappplied $V_{RRM(max)}$;	-	16	A
I_{FSM}	Non-repetitive peak forward current.	$T_{mb} \leq 82^\circ\text{C}$ $t = 10 \text{ ms}$ $t = 8.3 \text{ ms}$ sinusoidal; $T_j = 150^\circ\text{C}$ prior to surge with reappplied $V_{RWM(max)}$	-	55	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		-	-	2.2	K/W
$R_{th j-a}$	Thermal resistance junction to ambient	minimum footprint, FR4 board	-	50	-	K/W

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

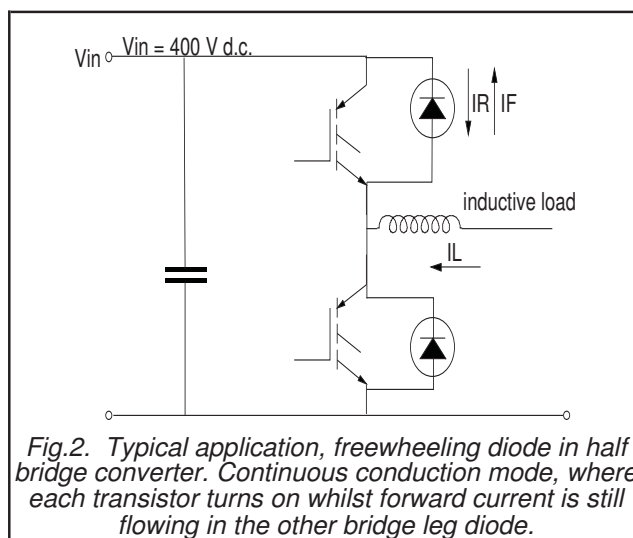
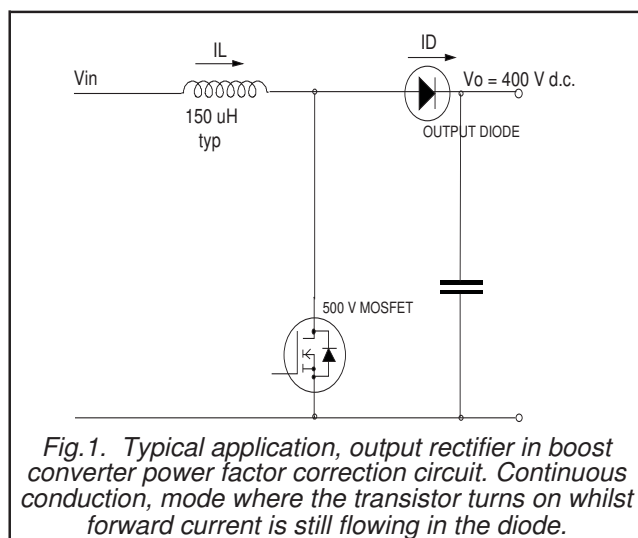
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ELECTRICAL CHARACTERISTICS

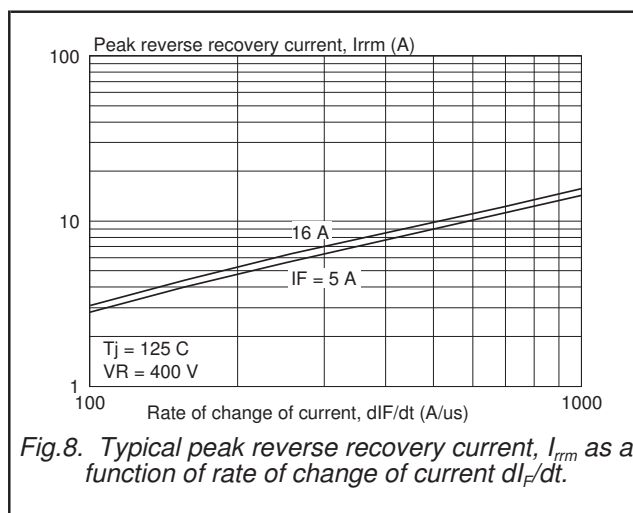
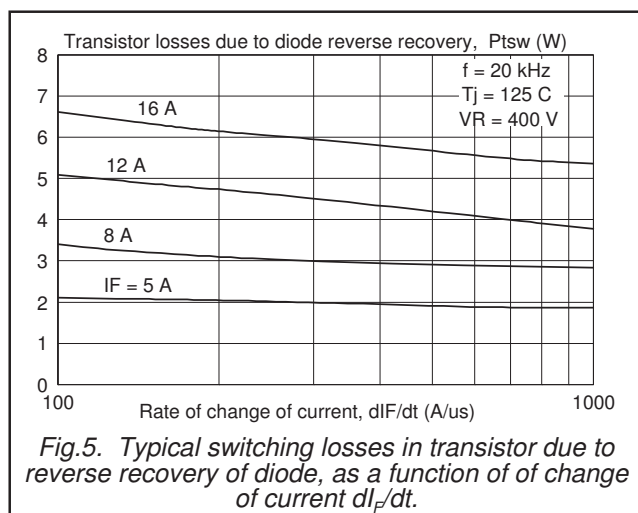
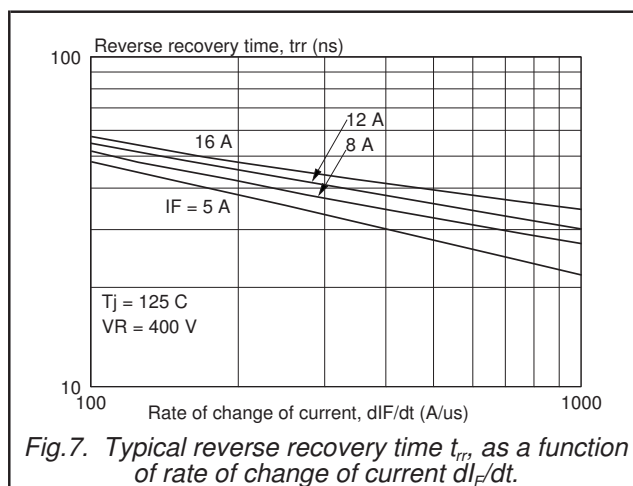
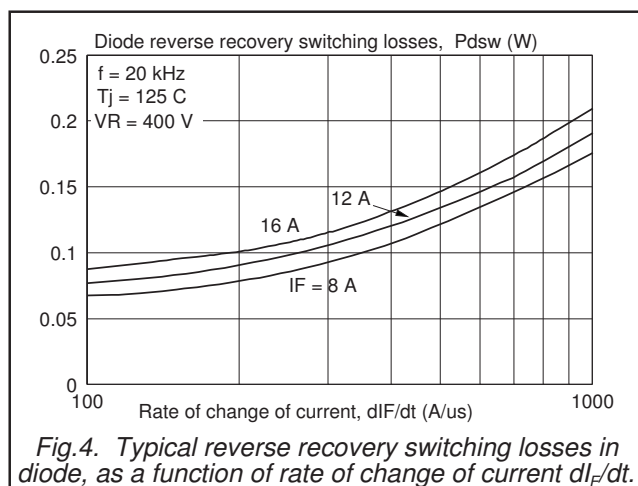
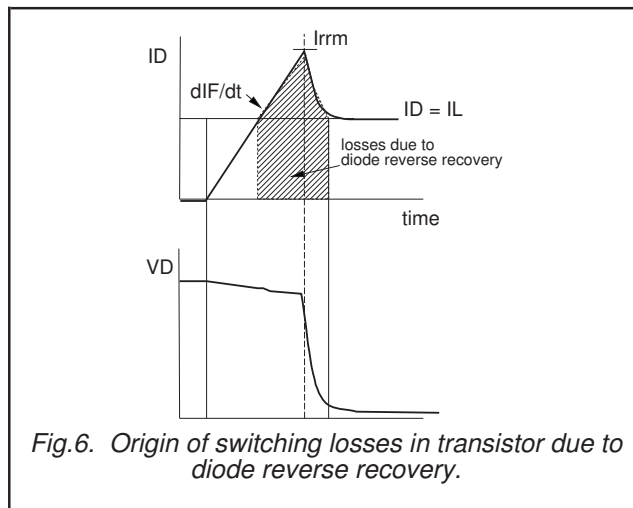
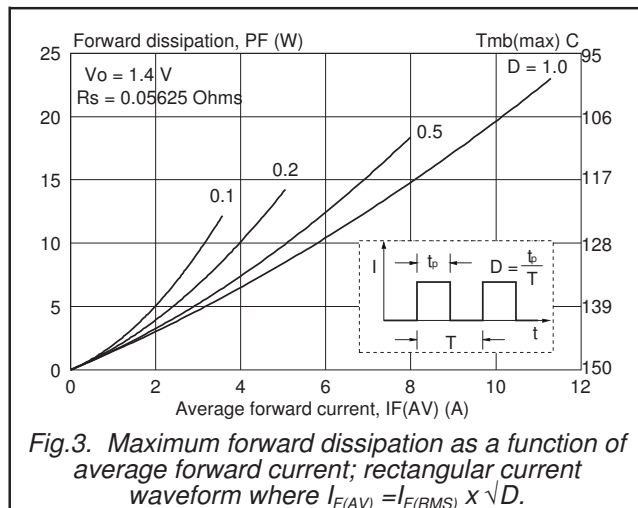
 $T_j = 25\text{ }^{\circ}\text{C}$ unless otherwise stated

SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT
V_F	Forward voltage	$I_F = 8\text{ A}; T_j = 150\text{ }^{\circ}\text{C}$	-	1.4	1.85	V
		$I_F = 16\text{ A}; T_j = 150\text{ }^{\circ}\text{C}$	-	1.7	2.3	V
I_R	Reverse current	$I_F = 8\text{ A};$ $V_R = 600\text{ V}$	-	2.0	2.9	V
		$V_R = 500\text{ V}; T_j = 100\text{ }^{\circ}\text{C}$	-	9	150	μA
			-	1.1	3.0	mA
t_{rr}	Reverse recovery time	$I_F = 1\text{ A}; V_R = 30\text{ V}; dI_F/dt = 50\text{ A}/\mu\text{s}$	-	30	52	ns
t_{rr}	Reverse recovery time	$I_F = 8\text{ A}; V_R = 400\text{ V};$ $dI_F/dt = 500\text{ A}/\mu\text{s}$	-	19	-	ns
t_{rr}	Reverse recovery time	$I_F = 8\text{ A}; V_R = 400\text{ V};$ $dI_F/dt = 500\text{ A}/\mu\text{s}; T_j = 100\text{ }^{\circ}\text{C}$	-	32	40	ns
I_{rrm}	Peak reverse recovery current	$I_F = 8\text{ A}; V_R = 400\text{ V};$ $dI_F/dt = 50\text{ A}/\mu\text{s}; T_j = 125\text{ }^{\circ}\text{C}$	-	1.5	5.5	A
I_{rrm}	Peak reverse recovery current	$I_F = 8\text{ A}; V_R = 400\text{ V};$ $dI_F/dt = 500\text{ A}/\mu\text{s}; T_j = 125\text{ }^{\circ}\text{C}$	-	9.5	12	A
V_{fr}	Forward recovery voltage	$I_F = 10\text{ A}; dI_F/dt = 100\text{ A}/\mu\text{s}$	-	8	10	V



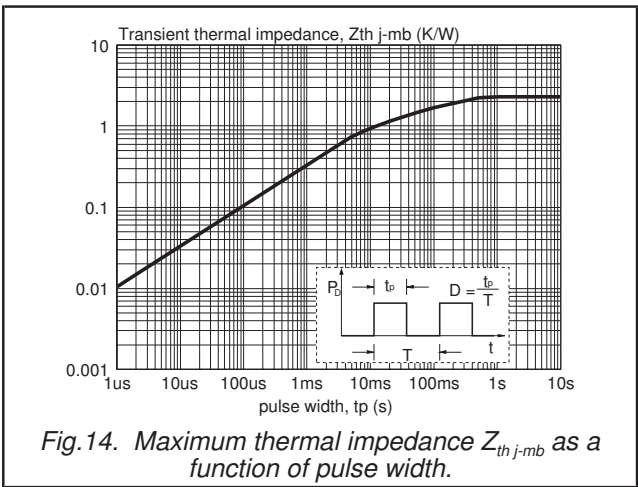
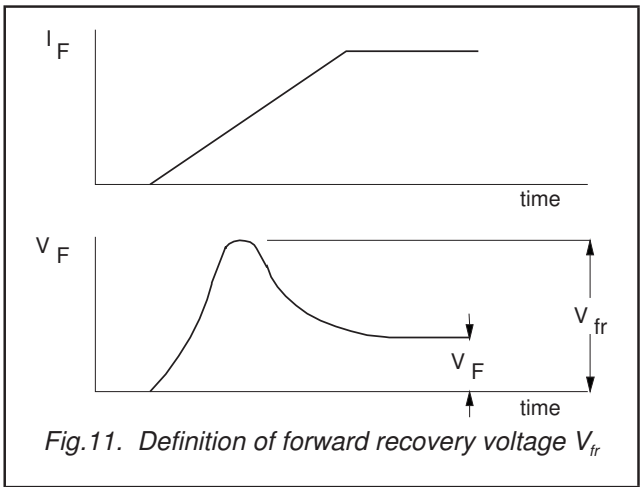
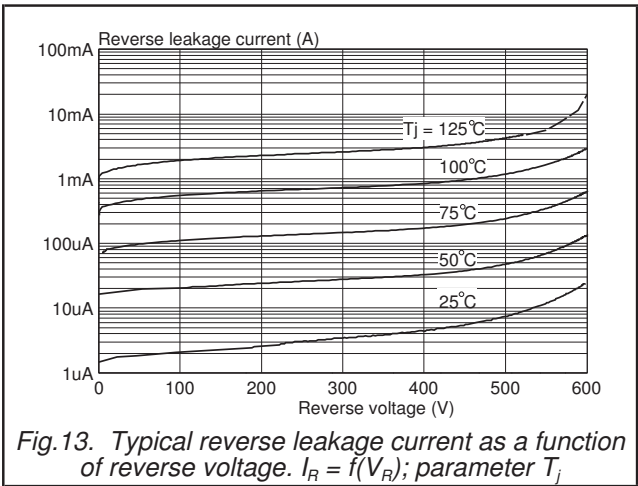
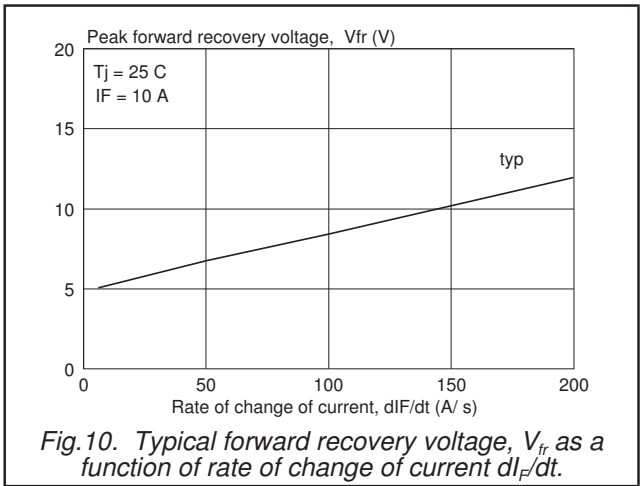
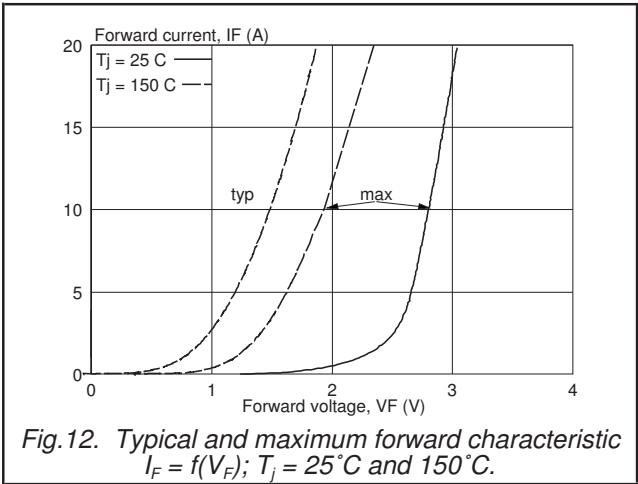
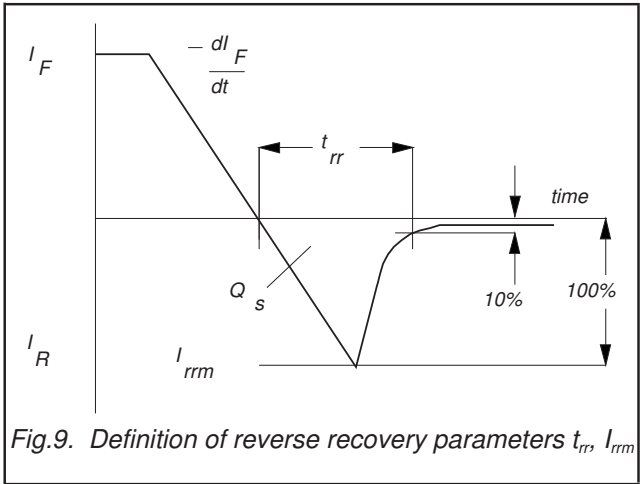
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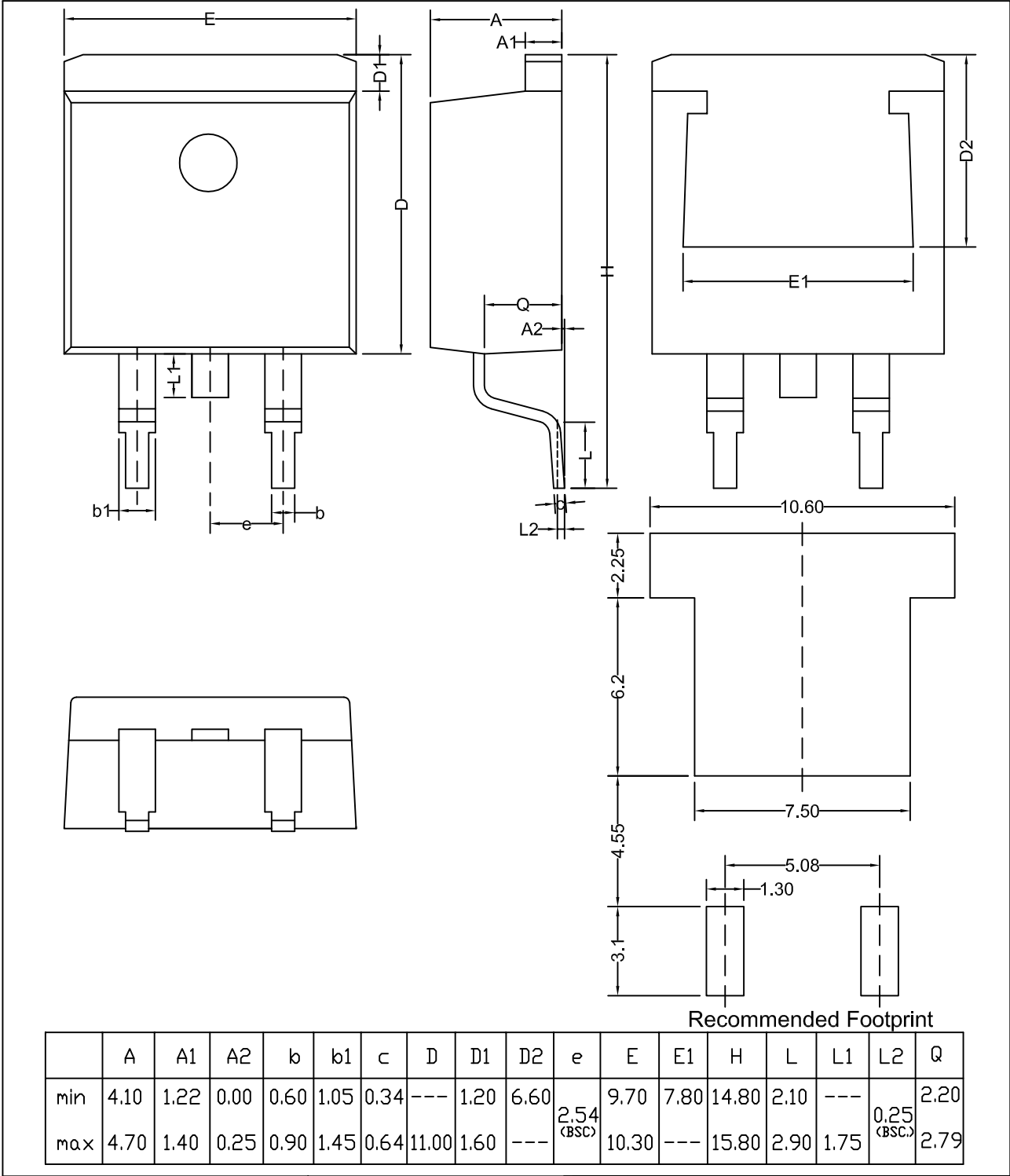


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MECHANICAL DATA

Plastic single-ended surface-mounted package (D2PAK); 3 leads (one lead cropped) TO263



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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