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Philips Semiconductors

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Data sheet	
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2N2646

Silicon unijunction transistor

QUICK REFERENCE DATA

SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT
$-V_{EB2}$	emitter-base 2 voltage		-	-	30	V
I_{EM}	emitter current	peak value	-	-	2	A
P_{tot}	total power dissipation		-	-	300	mW
T_j	junction temperature		-	-	125	°C
R_{BB}	static inter-base resistance	$V_{B2B1} = 3\text{ V}$ $I_E = 0$	-	7	-	kΩ
V_{EB1sat}	emitter-base 1 saturation voltage	$V_{B2B1} = 10\text{ V}$ $I_E = 50\text{ mA}$	-	3.5	-	V
$I_{E(V)}$	emitter valley point current		4	6	-	mA
$I_{E(P)}$	emitter peak point current		-	1	5	μA

PINNING - TO-18
Base 2 connected to case.

PIN	DESCRIPTION
1	emitter
2	base 1
3	base 2

PIN CONFIGURATION

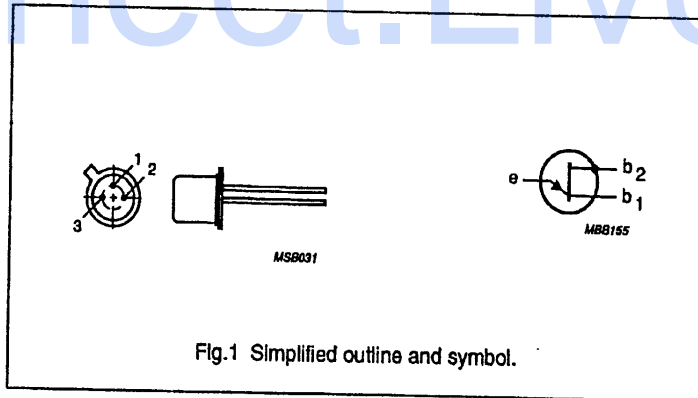


Fig. 1 Simplified outline and symbol.

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LIMITING VALUES

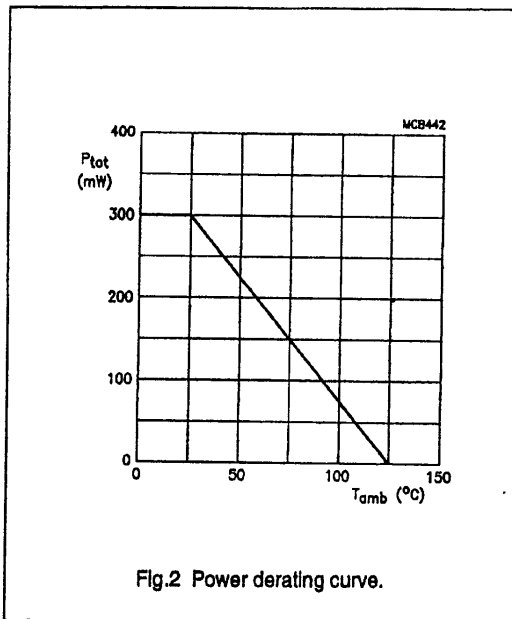
In accordance with the Absolute Maximum System (IEC 134).

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SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
$-V_{EB2}$	emitter-base 2 voltage		-	30	V
V_{B2B1}	inter-base voltage		-	35	V
I_E	emitter current	average value	-	50	mA
I_{EM}	emitter current (note 1)	peak value	-	2	A
P_{tot}	total power dissipation (note 2)	$T_{amb} \leq 25^\circ\text{C}$	-	300	mW
T_{stg}	storage temperature range		-65	150	$^\circ\text{C}$
T_j	junction temperature		-	125	$^\circ\text{C}$

Notes

1. Capacitor discharge $\leq 10 \mu\text{F}$ at $\leq 30 \text{ V}$.
2. Must be limited by external circuit.



THERMAL RESISTANCE

SYMBOL	PARAMETER	VALUE	UNIT
$R_{th(j-a)}$	from junction to ambient	300	K/W

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CHARACTERISTICS

T_{amb} = 25 °C unless otherwise specified.

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SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT
R _{BB}	static inter-base resistance	V _{B2B1} = 3 V I _E = 0	4.7	7	9.1	kΩ
TC _{RBB}	inter-base resistance temperature coefficient	V _{B2B1} = 3 V I _E = 0 T _{amb} = -55 to 125 °C	0.1	-	0.9	%/K
-I _{EB20}	emitter cut-off current	-V _{EB2} = 30 V I _{B1} = 0	-	-	12	V
V _{EB1sat}	emitter-base 1 saturation voltage	V _{B2B1} = 10 V I _E = 50 mA	-	3.5	-	V
I _{B2mod}	inter-base current modulation	V _{B2B1} = 10 V I _E = 50 mA	-	15	-	mA
η	input/output ratio (note 1)	V _{B2B1} = 10 V	0.56	-	0.75	
I _{E(V)}	emitter valley point current	V _{B2B1} = 20 V R _{B2} = 100 Ω	4	6	-	mA
I _{E(P)}	emitter peak point current	V _{B2B1} = 25 V	-	1	5	μA
V _{OB1M}	base 1 impulse/output voltage		3	5	-	V

Note

- $$\eta = \frac{(V_{E(P)} - V_{EB1})}{V_{B2B1}}$$
 when V_{E(P)} = emitter peak point voltage, V_{EB1} = emitter-base 1 breakdown voltage, (approximately 0.5 V at 10 μA), and V_{B2B1} = inter-base voltage.

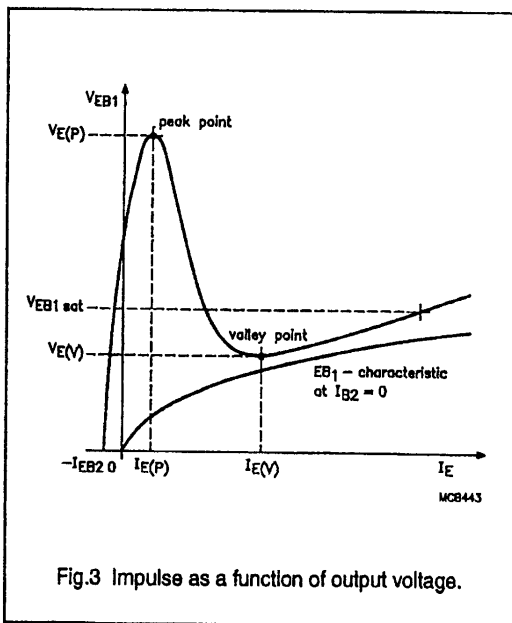


Fig.3 Impulse as a function of output voltage.

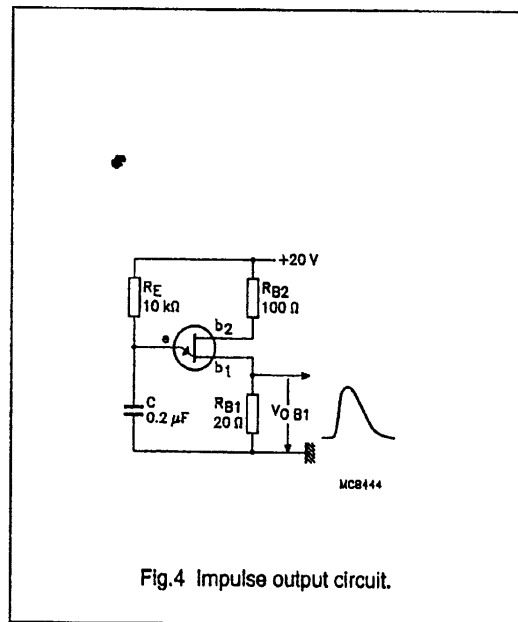


Fig.4 Impulse output circuit.

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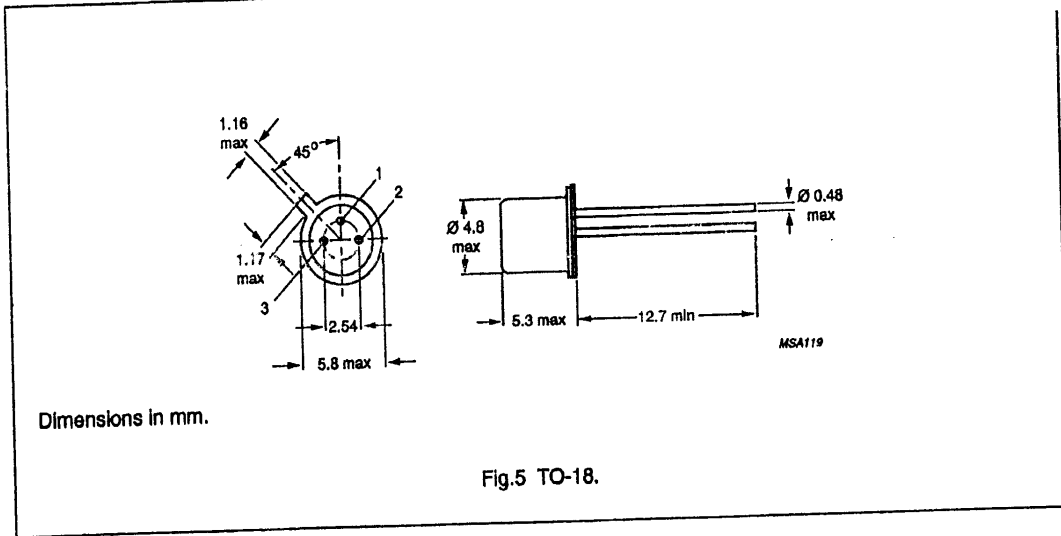
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PACKAGE OUTLINE

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Dimensions in mm.

Fig.5 TO-18.