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Philips Semiconductors

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Data sheet	
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2N2646

Silicon unijunction transistor

QUICK REFERENCE DATA

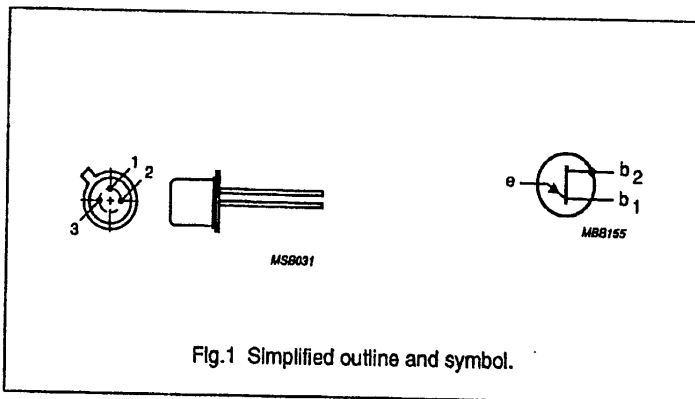
SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT
$-V_{EB2}$	emitter-base 2 voltage		—	—	30	V
I_{EM}	emitter current	peak value	—	—	2	A
P_{tot}	total power dissipation		—	—	300	mW
T_j	junction temperature		—	—	125	°C
R_{BB}	static inter-base resistance	$V_{B2B1} = 3 \text{ V}$ $I_E = 0$	—	7	—	k Ω
V_{EB1sat}	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



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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.

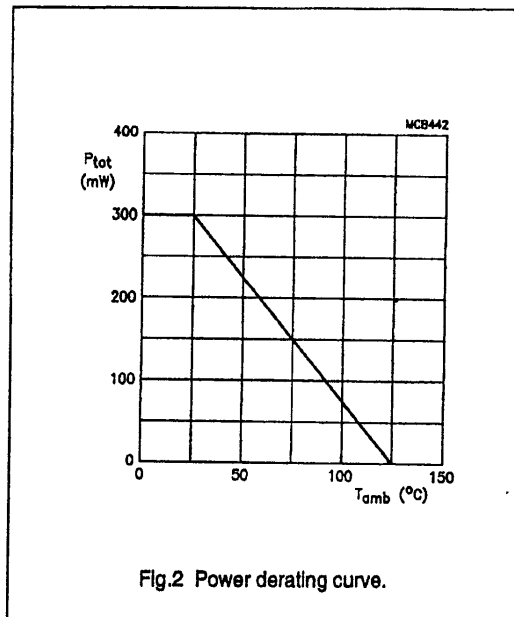


Fig.2 Power derating curve.

THERMAL RESISTANCE

SYMBOL	PARAMETER	VALUE	UNIT
$R_{th ja}$	from junction to ambient	300	K/W

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CHARACTERISTICS

 $T_{amb} = 25\text{ }^{\circ}\text{C}$ unless otherwise specified.

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SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT
R_{BB}	static inter-base resistance	$V_{B2B1} = 3\text{ V}$ $I_E = 0$	4.7	7	9.1	$k\Omega$
TC_{RBB}	inter-base resistance temperature coefficient	$V_{B2B1} = 3\text{ V}$ $I_E = 0$ $T_{amb} = -55\text{ to }125\text{ }^{\circ}\text{C}$	0.1	—	0.9	%/K
$-I_{EB20}$	emitter cut-off current	$-V_{EB2} = 30\text{ V}$ $I_{B1} = 0$	—	—	12	V
V_{EB1sat}	emitter-base 1 saturation voltage	$V_{B2B1} = 10\text{ V}$ $I_E = 50\text{ mA}$	—	3.5	—	V
I_{B2mod}	inter-base current modulation	$V_{B2B1} = 10\text{ V}$ $I_E = 50\text{ mA}$	—	15	—	mA
η	input/output ratio (note 1)	$V_{B2B1} = 10\text{ V}$	0.56	—	0.75	
$I_{E(V)}$	emitter valley point current	$V_{B2B1} = 20\text{ V}$ $R_{B2} = 100\text{ }\Omega$	4	6	—	mA
$I_{E(P)}$	emitter peak point current	$V_{B2B1} = 25\text{ V}$	—	1	5	μA
V_{OB1M}	base 1 impulse/output voltage		3	5	—	V

Note

1. $\eta = \frac{(V_{E(P)} - V_{EB1})}{V_{B2B1}}$, 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.

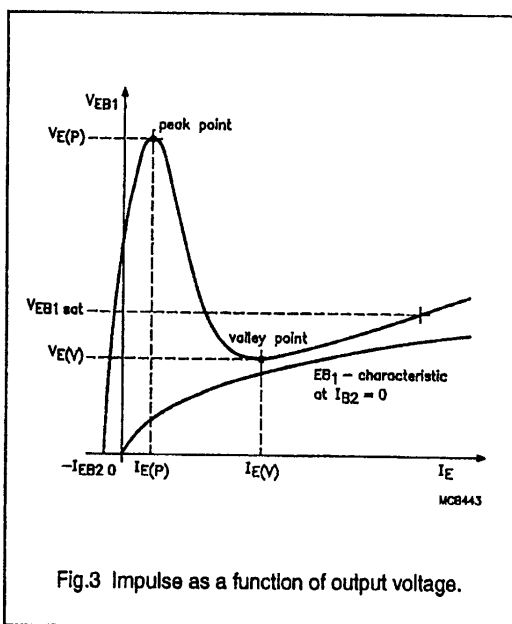


Fig.3 Impulse as a function of output voltage.

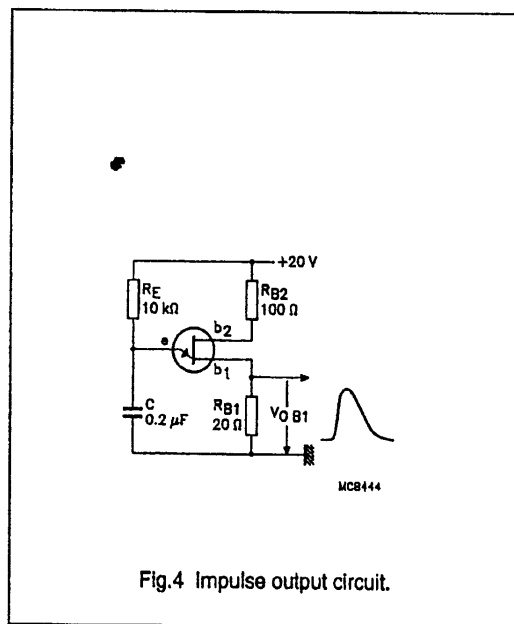


Fig.4 Impulse output circuit.

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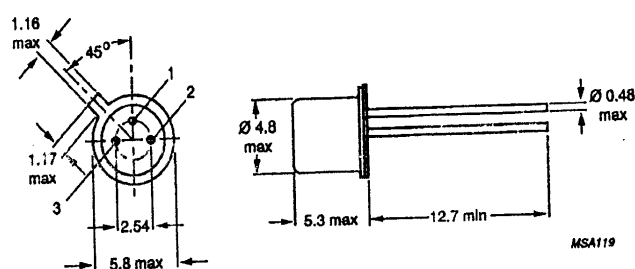
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PACKAGE OUTLINE

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Dimensions in mm.

Fig.5 TO-18.