

HIGH CURRENT SILICON NPN POWER TRANSISTOR

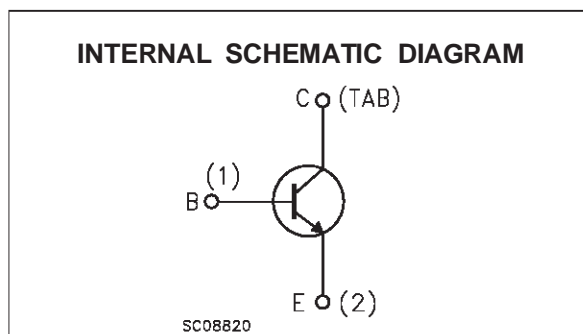
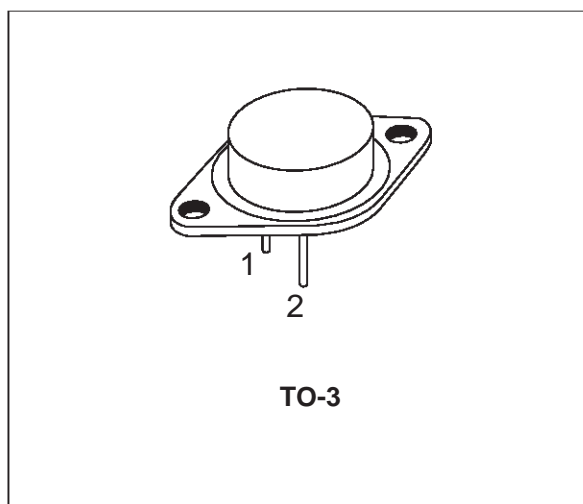
- STMicroelectronics PREFERRED SALESTYPE
- HIGH CURRENT CAPABILITY

APPLICATIONS

- GENERAL PURPOSE SWITCHING AND AMPLIFIER
- LINEAR AND SWITCHING INDUSTRIAL EQUIPMENT

DESCRIPTION

The 2N5886 is a silicon Epitaxial-Base NPN power transistor mounted in Jedec TO-3 metal case. It is intended for use in power linear amplifiers and switching applications.



ABSOLUTE MAXIMUM RATINGS

Symbol	Parameter	Value	Unit
V_{CBO}	Collector-Base Voltage ($I_E = 0$)	80	V
V_{CEO}	Collector-Emitter Voltage ($I_B = 0$)	80	V
V_{EBO}	Emitter-Base Voltage ($I_C = 0$)	5	V
I_C	Collector Current	25	A
I_{CM}	Collector Peak Current	50	A
I_B	Base Current	7.5	A
P_{tot}	Total Dissipation at $T_c \leq 25^\circ\text{C}$	200	W
T_{stg}	Storage Temperature	-65 to 200	$^\circ\text{C}$
T_j	Max. Operating Junction Temperature	200	$^\circ\text{C}$

THERMAL DATA

$R_{thj-case}$	Thermal Resistance Junction-case	Max	0.875	$^{\circ}\text{C/W}$
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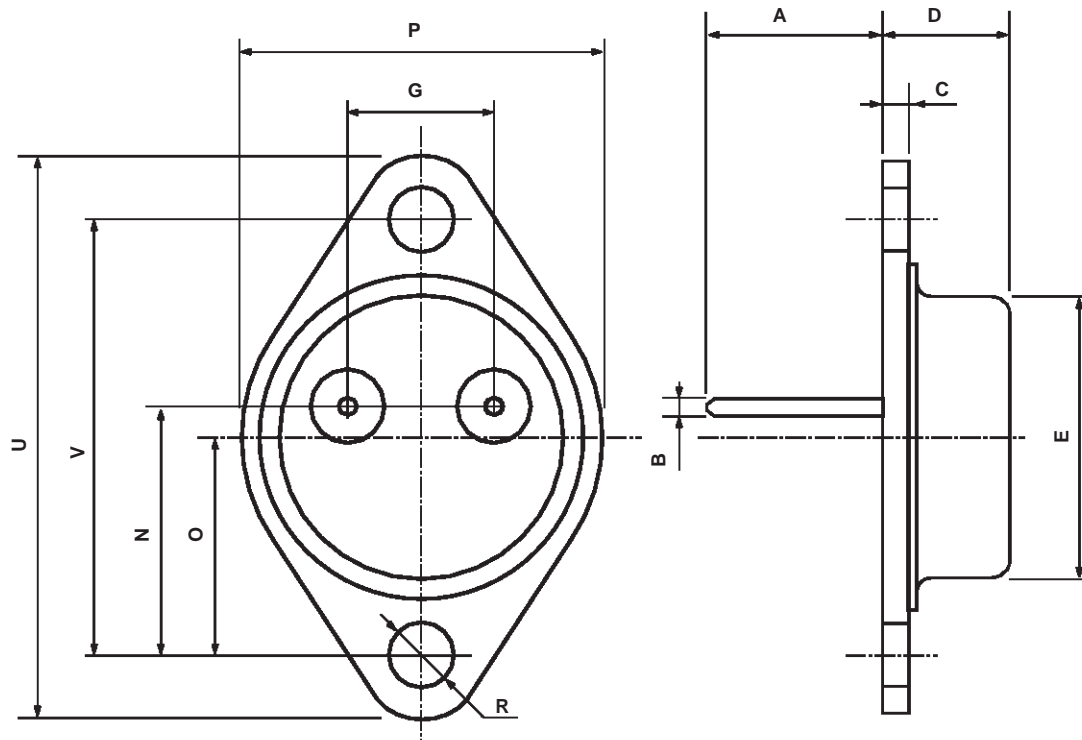
ELECTRICAL CHARACTERISTICS ($T_{case} = 25^{\circ}\text{C}$ unless otherwise specified)

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
I_{CEV}	Collector Cut-off Current ($V_{BE} = -1.5\text{V}$)	$V_{CE} = 80\text{ V}$ $V_{CE} = 80\text{ V}$ $T_C = 150^{\circ}\text{C}$			1 10	mA mA
I_{CBO}	Collector Cut-off Current ($I_E = 0$)	$V_{CB} = 80\text{ V}$			1	mA
I_{CEO}	Collector Cut-off Current ($I_B = 0$)	$V_{CE} = 40\text{ V}$			2	mA
I_{EBO}	Emitter Cut-off Current ($I_C = 0$)	$V_{EB} = 5\text{ V}$			1	mA
$V_{CEO(sus)}^*$	Collector-Emitter Sustaining Voltage ($I_B = 0$)	$I_C = 200\text{ mA}$	80			V
$V_{CE(sat)}^*$	Collector-Emitter Saturation Voltage	$I_C = 15\text{ A}$ $I_B = 1.5\text{ A}$ $I_C = 25\text{ A}$ $I_B = 6.25\text{ A}$			1 4	V V
$V_{BE(sat)}^*$	Base-Emitter Saturation Voltage	$I_C = 25\text{ A}$ $I_B = 6.25\text{ A}$			2.5	V
V_{BE}^*	Base-Emitter Voltage	$I_C = 10\text{ A}$ $V_{CE} = 4\text{ V}$			1.5	V
h_{FE}^*	DC Current Gain	$I_C = 3\text{ A}$ $V_{CE} = 4\text{ V}$ $I_C = 10\text{ A}$ $V_{CE} = 4\text{ V}$ $I_C = 25\text{ A}$ $V_{CE} = 4\text{ V}$	35 20 4		100	
h_{fe}	Small Signal Current Gain	$I_C = 3\text{ A}$ $V_{CE} = 4\text{ V}$ $f = 1\text{KHz}$	20			
f_T	Transition frequency	$I_C = 1\text{ A}$ $V_{CE} = 10\text{ V}$ $f = 1\text{ MHz}$	4			MHz
C_{CBO}	Collector Base Capacitance	$I_E = 0$ $V_{CB} = 10\text{ V}$ $f = 1\text{MHz}$			500	pF
t_r t_s t_f	RESISTIVE LOAD Rise Time Storage Time Fall Time	$I_C = 10\text{ A}$ $V_{CC} = 30\text{ V}$ $I_{B1} = -I_{B2} = 1\text{A}$			0.7 1 0.8	μs μs μs

* Pulsed: Pulse duration = 300 μs , duty cycle 1.5 %

TO-3 MECHANICAL DATA

DIM.	mm			inch		
	MIN.	TYP.	MAX.	MIN.	TYP.	MAX.
A	11.00		13.10	0.433		0.516
B	0.97		1.15	0.038		0.045
C	1.50		1.65	0.059		0.065
D	8.32		8.92	0.327		0.351
E	19.00		20.00	0.748		0.787
G	10.70		11.10	0.421		0.437
N	16.50		17.20	0.649		0.677
P	25.00		26.00	0.984		1.023
R	4.00		4.09	0.157		0.161
U	38.50		39.30	1.515		1.547
V	30.00		30.30	1.187		1.193



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