

COMPLEMENTARY SILICON HIGH POWER TRANSISTORS

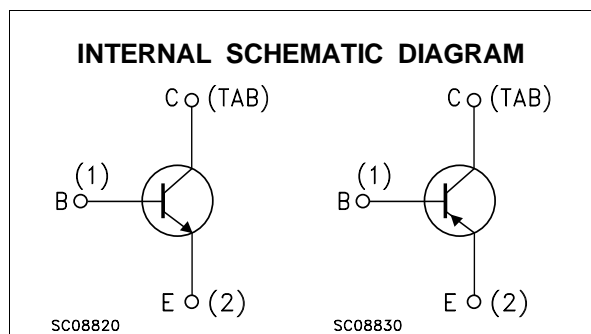
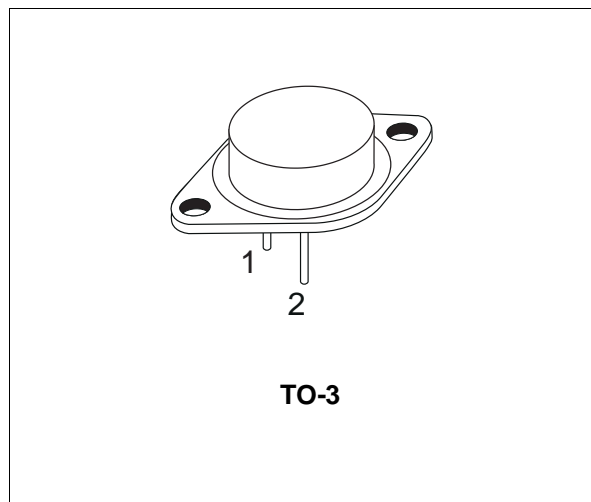
- SGS-THOMSON PREFERRED SALESTYPES
- COMPLEMENTARY PNP - NPN DEVICES
- HIGH CURRENT CAPABILITY

APPLICATIONS

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

DESCRIPTION

The 2N5884 and 2N5886 are complementary silicon power transistor in Jedec TO-3 metal case intended for use in power linear amplifiers and switching applications.



ABSOLUTE MAXIMUM RATINGS

Symbol	Parameter	Value		Unit
		PNP	NPN	
V_{CBO}	Collector-Base Voltage ($I_E = 0$)	2N5884		V
V_{CEO}	Collector-Emitter Voltage ($I_B = 0$)	2N5886		
V_{EBO}	Emitter-Base Voltage ($I_C = 0$)	80		V
I_C	Collector Current	5		V
I_{CM}	Collector Peak Current	25		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		$^\circ\text{C}$

For PNP types voltage and current values are negative.

THERMAL DATA

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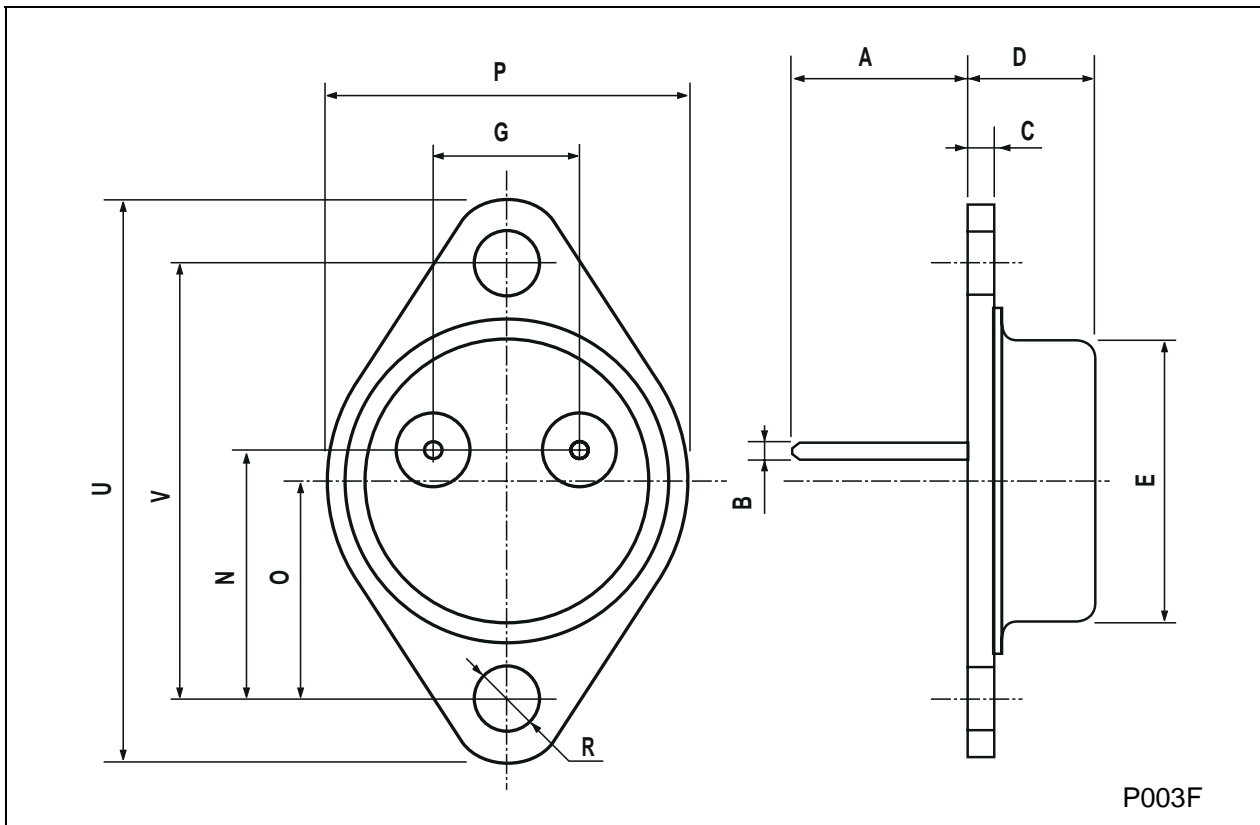
ELECTRICAL CHARACTERISTICS ($T_{case} = 25^{\circ}\text{C}$ unless otherwise specified)

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
I_{CEV}	Collector Cut-off Current ($V_{BE} = -1.5\text{V}$)	$V_{CE} = \text{rated } V_{CE0}$ $V_{CE} = \text{rated } V_{CE0} \quad T_c = 150^{\circ}\text{C}$			1 10	mA mA
I_{CBO}	Collector Cut-off Current ($I_E = 0$)	$V_{CE} = \text{rated } V_{CBO}$			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	$I_C = 200\text{ mA}$	80			V
$V_{CE(sat)*}$	Collector-Emitter Saturation Voltage	$I_C = 15\text{ A} \quad I_B = 1.5\text{ A}$ $I_C = 25\text{ A} \quad I_B = 6.25\text{ A}$			1 4	V V
$V_{BE(sat)*}$	Base-Emitter Saturation Voltage	$I_C = 25\text{ A} \quad I_B = 6.25\text{ A}$			2.5	V
V_{BE*}	Base-Emitter Voltage	$I_C = 10\text{ A} \quad V_{CE} = 4\text{ V}$			1.5	V
h_{FE*}	DC Current Gain	$I_C = 3\text{ A} \quad V_{CE} = 4\text{ V}$ $I_C = 10\text{ A} \quad V_{CE} = 4\text{ V}$ $I_C = 25\text{ A} \quad V_{CE} = 4\text{ V}$	35 20 4		100	
h_{fe}	Small Signal Current Gain	$I_C = 3\text{ A} \quad V_{CE} = 4\text{ V} \quad f = 1\text{KHz}$	20			
f_T	Transition frequency	$I_C = 1\text{ A} \quad V_{CE} = 10\text{ V} \quad f = 1\text{ MHz}$	4			MHz
C_{CBO}	Collector Base Capacitance	$I_E = 0 \quad V_{CB} = 10\text{ V} \quad f = 1\text{MHz}$ for NPN type for PNP type			500 1000	pF pF
t_r	Rise Time	$I_C = 10\text{ A} \quad V_{CC} = 30\text{ V}$			0.7	μs
t_s	Storage Time	$I_{B1} = -I_{B2} = 1\text{A}$			1	μs
t_f	Fall Time				0.8	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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