

HIGH CURRENT NPN SILICON TRANSISTORS

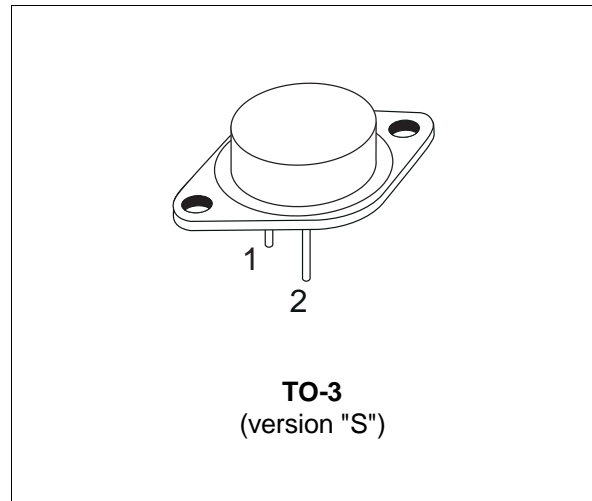
- SGS-THOMSON PREFERRED SALESTYPES
- NPN TRANSISTOR
- HIGH CURRENT CAPABILITY
- FAST SWITCHING SPEED
- HIGH RUGGEDNESS

APPLICATIONS

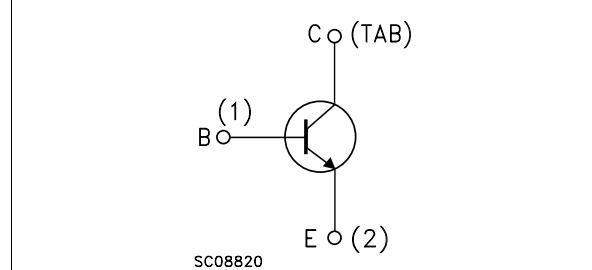
- LINEAR AND SWITCHING INDUSTRIAL EQUIPMENT
- SWITCHING REGULATORS

DESCRIPTION

The BUV20 and BUV21 are silicon multiepitaxial planar NPN transistor in jedec TO-3 metal case, intended for use in switching and linear applications in military and industrial equipment.



INTERNAL SCHEMATIC DIAGRAM



ABSOLUTE MAXIMUM RATINGS

Symbol	Parameter	Value		Unit
		BUV20	BUV21	
V_{CBO}	Collector-Base Voltage ($I_E = 0$)	160	250	V
V_{CER}	Collector-Emitter Voltage ($R_{BE} = 100\Omega$)	150	240	V
V_{CEX}	Collector-Emitter Voltage ($V_{BE} = -1.5V$)	160	250	V
V_{CEO}	Collector-Emitter Voltage ($I_B = 0$)	125	200	V
V_{EBO}	Emitter-Base Voltage ($I_C = 0$)	7	7	V
I_C	Collector Current	50	40	A
I_{CM}	Collector Peak Current	60	50	A
I_B	Base Current	10	8	A
P_{tot}	Total Power Dissipation at $T_{case} \leq 25^\circ C$	250		W
T_{stg}	Storage Temperature	-65 to 200		$^\circ C$
T_j	Junction Temperature	200		$^\circ C$

BUV20 / BUV21

THERMAL DATA

R _{thj-case}	Thermal Resistance Junction-case	Max	0.7	°C/W
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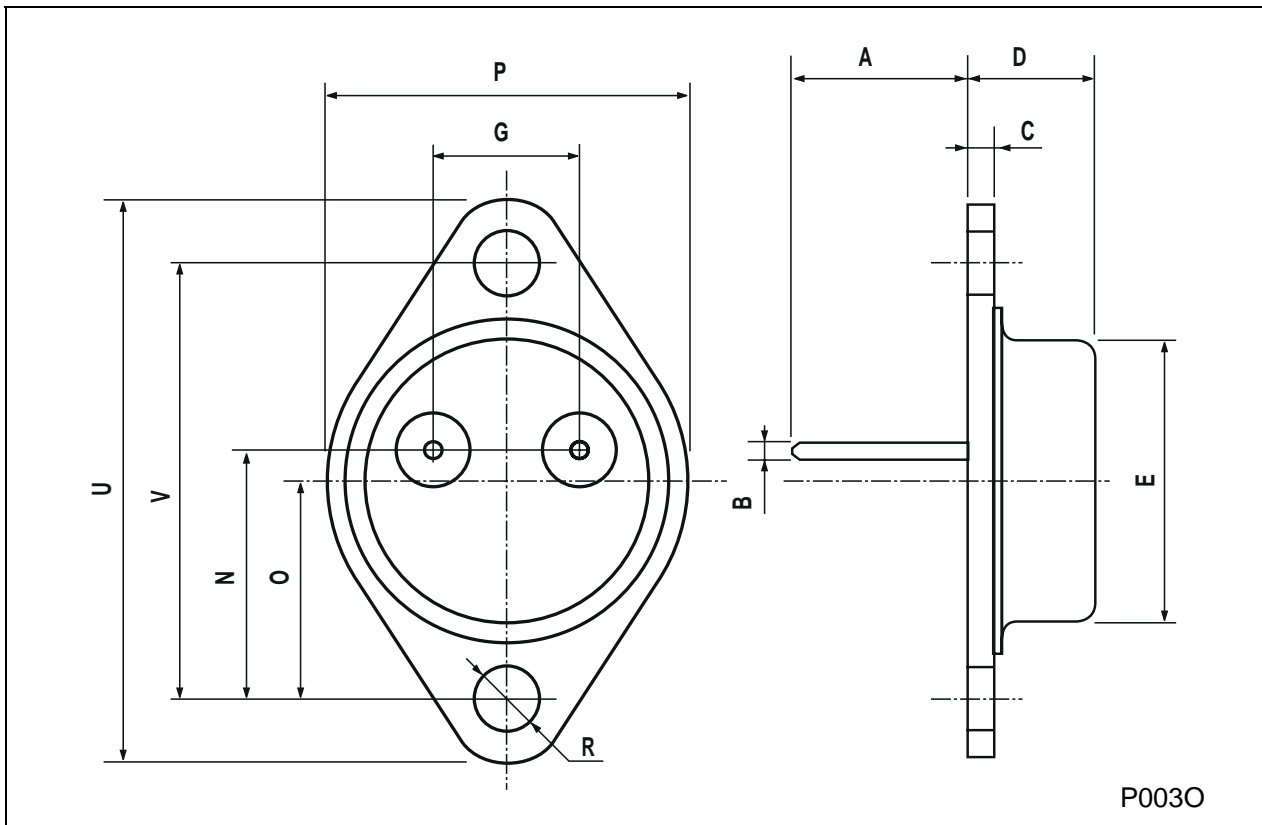
ELECTRICAL CHARACTERISTICS (T_{case} = 25 °C unless otherwise specified)

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
I _{CEX}	Collector Cut-off Current (V _{BE} = -1.5V)	V _{CE} = V _{CEX} for BUV20 for BUV21 at T _{case} = 125 °C for BUV20 for BUV21			3 3 12 12	mA mA mA mA
I _{CEO}	Collector Cut-off Current (I _B = 0)	for BUV20 V _{CE} = 100 V for BUV21 V _{CE} = 160 V			3 3	mA mA
I _{EBO}	Emitter Cut-off Current (I _C = 0)	V _{EB} = 5 V			1	mA
V _{CEO(sus)*}	Collector-Emitter Sustaining Voltage (I _B = 0)	I _C = 200 mA L = 25 mH for BUV20 for BUV21	125 200			V V
V _{(BR)EB0*}	Emitter-base Breakdown Voltage (I _C = 0)	I _E = 50 mA	7			V
V _{CE(sat)*}	Collector-Emitter Saturation Voltage	for BUV20 I _C = 25 A I _B = 2.5 A I _C = 50 A I _B = 5 A for BUV21 I _C = 12 A I _B = 1.2 A I _C = 25 A I _B = 3 A		0.3 0.7 0.2 0.9	0.6 1.2 0.6 1.5	V V V V
V _{BE(sat)*}	Base-Emitter Saturation Voltage	for BUV20 I _C = 50 A I _B = 5 A for BUV21 I _C = 25 A I _B = 3 A		1.4 1.2	2 1.5	V V
h _{FE*}	DC Current Gain	for BUV20 V _{CE} = 2 V I _C = 25 A V _{CE} = 4 V I _C = 50 A for BUV21 V _{CE} = 2 V I _C = 12 A V _{CE} = 4 V I _C = 25 A	20 10 20 10		60 60	
f _T	Transition frequency	V _{CE} = 15 V I _C = 2 A f = 100 MHz	8			MHz
t _{on}	Turn-on Time	for BUV20 I _C = 50 A I _B = 5 A for BUV21 I _C = 25 A I _B = 3 A			1.5 1.2	μs μs
t _f	Fall time	for BUV20 I _C = 50 A I _{B1} = - I _{B2} = 5 A for BUV21 I _C = 25 A I _{B1} = - I _{B2} = 3 A			0.3 0.4	μs μs
t _s	Storage Time	for BUV20 I _C = 50 A I _{B1} = - I _{B2} = 5 A for BUV21 I _C = 25 A I _{B1} = - I _{B2} = 3 A			1.2 1.8	μs μs

* Pulsed: Pulse duration = 300 μs, duty cycle ≤ 2 %

TO-3 (version S) MECHANICAL DATA

DIM.	mm			inch		
	MIN.	TYP.	MAX.	MIN.	TYP.	MAX.
A	11.00		13.10	0.433		0.516
B	1.47		1.60	0.058		0.063
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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