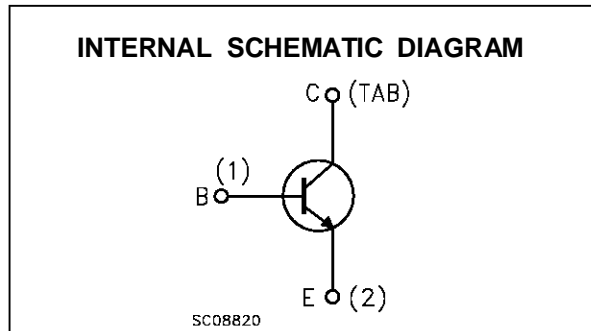
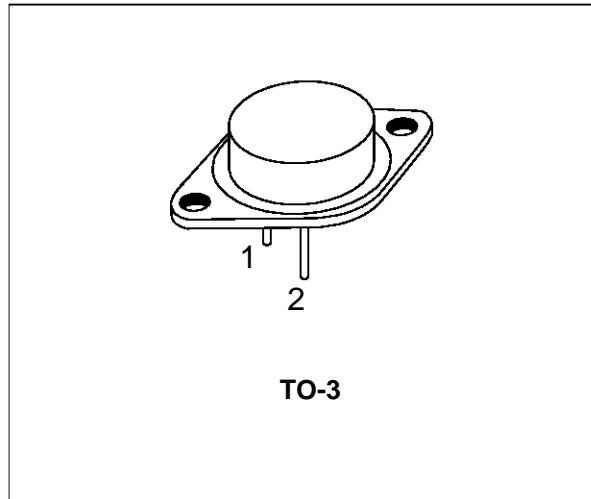


**SILICON NPN SWITCHING TRANSISTOR**

- SGS-THOMSON PREFERRED SALESTYPE
- FAST SWITCHING TIMES
- LOW SWITCHING LOSSES
- VERY LOW SATURATION VOLTAGE AND HIGH GAIN FOR REDUCED LOAD OPERATION



**ABSOLUTE MAXIMUM RATINGS**

Symbol	Parameter	Value	Unit
$V_{CEV}$	Collector-emitter Voltage ( $V_{BE} = -1.5V$ )	250	V
$V_{CEO}$	Collector-emitter Voltage ( $I_B = 0$ )	125	V
$V_{EBO}$	Emitter-Base Voltage ( $I_C = 0$ )	7	V
$I_C$	Collector Current	50	V
$I_{CM}$	Collector Peak Current	80	V
$I_B$	Base Current	10	A
$I_{BM}$	Base Peak Current	18	A
$P_{Base}$	Reverse Bias Base Dissipation (B.E. junction in avalanche)	3	A
$P_{tot}$	Total Power Dissipation at $T_{case} \leq 25^\circ C$	250	W
$T_{stg}$	Storage Temperature	-65 to 200	$^\circ C$
$T_j$	Max Operating Junction Temperature	200	$^\circ C$

# BUV60

## THERMAL DATA

R <sub>thj-case</sub>	Thermal Resistance Junction-case	Max	0.7	°C/W
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## ELECTRICAL CHARACTERISTICS (T<sub>case</sub> = 25 °C unless otherwise specified)

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
I <sub>CER</sub>	Collector Cut-off Current (R <sub>BE</sub> = 10Ω)	V <sub>CE</sub> = V <sub>CEV</sub> V <sub>CE</sub> = V <sub>CEV</sub> T <sub>C</sub> = 100°C			1 5	mA mA
I <sub>CEV</sub>	Collector Cut-off Current	V <sub>CE</sub> = V <sub>CEV</sub> V <sub>BE</sub> = -1.5V V <sub>CE</sub> = V <sub>CEV</sub> V <sub>BE</sub> = -1.5V T <sub>C</sub> = 100°C			1 4	mA mA
I <sub>EBO</sub>	Emitter Cut-off Current (I <sub>C</sub> = 0)	V <sub>EB</sub> = 5 V			1	mA
V <sub>CEO(sus)*</sub>	Collector-Emitter Sustaining Voltage	I <sub>C</sub> = 0.2A L = 25 mH	125			V
V <sub>EBO</sub>	Emitter-base Voltage (I <sub>C</sub> = 0)	I <sub>E</sub> = 50 mA	7			V
V <sub>CE(sat)*</sub>	Collector-Emitter Saturation Voltage	I <sub>C</sub> = 25A I <sub>B</sub> = 1.25A I <sub>C</sub> = 50A I <sub>B</sub> = 5A I <sub>C</sub> = 60A I <sub>B</sub> = 7.5A I <sub>C</sub> = 25A I <sub>B</sub> = 1.25A T <sub>j</sub> = 100°C I <sub>C</sub> = 50A I <sub>B</sub> = 5A T <sub>j</sub> = 100°C I <sub>C</sub> = 60A I <sub>B</sub> = 7.5A T <sub>j</sub> = 100°C		0.45 0.65 0.75 0.45 0.7 0.9	0.9 0.9 1.2 1.2 1.5 1.8	V V V V V V
V <sub>BE(sat)*</sub>	Base-Emitter Saturation Voltage	I <sub>C</sub> = 50A I <sub>B</sub> = 5A I <sub>C</sub> = 60A I <sub>B</sub> = 7.5A I <sub>C</sub> = 50A I <sub>B</sub> = 5A T <sub>j</sub> = 100°C I <sub>C</sub> = 60A I <sub>B</sub> = 7.5A T <sub>j</sub> = 100°C		1.4 1.55 1.45 1.65	1.6 1.8 1.7 1.9	V V V V
di <sub>c</sub> /dt*	Rated of Rise of on-state Collector Current	V <sub>CC</sub> = 100V R <sub>C</sub> = 0 I <sub>B1</sub> = 7.5A T <sub>j</sub> = 25°C T <sub>j</sub> = 100°C	100 90	160 150		A/μs A/μs
V <sub>CE(2μs)</sub>	Collector Emitter Dynamic Voltage	V <sub>CC</sub> = 100V R <sub>C</sub> = 2Ω I <sub>B1</sub> = 5A T <sub>j</sub> = 25°C T <sub>j</sub> = 100°C		2.5 3	3 4.5	V V
V <sub>CE(4μs)</sub>	Collector Emitter Dynamic Voltage	V <sub>CC</sub> = 100V R <sub>C</sub> = 2Ω I <sub>B1</sub> = 5A T <sub>j</sub> = 25°C T <sub>j</sub> = 100°C		1.8 1.9	2.2 3	V V

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

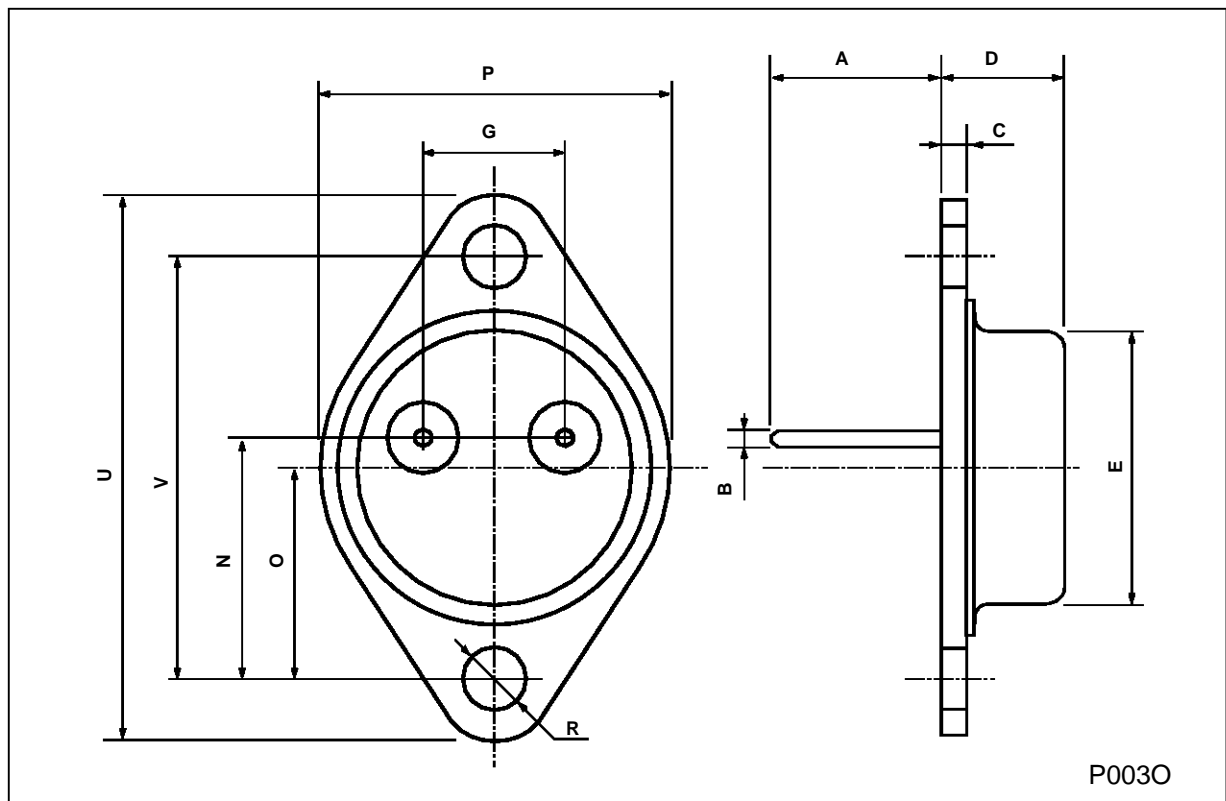
**ELECTRICAL CHARACTERISTICS** (continued)

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
$t_r$	<b>RESISTIVE LOAD</b>			0.5	0.8	$\mu\text{s}$
$t_s$	Rise Time	$V_{CC} = 100\text{V}$ $I_C = 60\text{A}$		0.6	1.1	$\mu\text{s}$
$t_f$	Storage Time	$V_{BB} = -5\text{V}$ $I_{B1} = 7.5\text{A}$		0.06	0.2	$\mu\text{s}$
	Fall Time	$R_{B2} = 0.33\Omega$ $T_p = 30\mu\text{s}$				
$t_s$	<b>INDUCTIVE LOAD</b>			0.5	1.2	$\mu\text{s}$
$t_f$	Storage Time	$V_{CC} = 100\text{V}$ $V_{\text{clamp}} = 125\text{V}$		0.05	0.15	$\mu\text{s}$
$t_r$	Fall Time	$I_C = 50\text{A}$ $I_B = 5\text{A}$		0.01	0.05	$\mu\text{s}$
$t_t$	Tail Time in Turn-on	$V_{BB} = -5\text{V}$ $R_{B2} = 0.5\Omega$		0.1	0.3	$\mu\text{s}$
$t_c$	Crossover Time	$L_C = 0.1\text{mH}$				
$t_s$	Storage Time	$V_{CC} = 100\text{V}$ $V_{\text{clamp}} = 125\text{V}$		0.85	1.5	$\mu\text{s}$
$t_f$	Fall Time	$I_C = 50\text{A}$ $I_B = 5\text{A}$		0.12	0.25	$\mu\text{s}$
$t_t$	Tail Time in Turn-on	$V_{BB} = -5\text{V}$ $R_{B2} = 0.5\Omega$		0.04	0.1	$\mu\text{s}$
$t_c$	Crossover Time	$L_C = 0.1\text{mH}$ $T_j = 100^\circ\text{C}$		0.2	0.5	$\mu\text{s}$
$t_s$	Storage Time	$V_{CC} = 100\text{V}$ $V_{\text{clamp}} = 125\text{V}$		1.5		$\mu\text{s}$
$t_f$	Fall Time	$I_C = 50\text{A}$ $I_B = 5\text{A}$		1.3		$\mu\text{s}$
$t_t$	Tail Time in Turn-on	$V_{BB} = 0$ $R_{B2} = 1.5\Omega$		0.4		$\mu\text{s}$
		$L_C = 0.1\text{mH}$				
$t_s$	Storage Time	$V_{CC} = 100\text{V}$ $V_{\text{clamp}} = 125\text{V}$		2.7		$\mu\text{s}$
$t_f$	Fall Time	$I_C = 50\text{A}$ $I_B = 5\text{A}$		1.8		$\mu\text{s}$
$t_t$	Tail Time in Turn-on	$V_{BB} = 0$ $R_{B2} = 1.5\Omega$		0.6		$\mu\text{s}$
		$L_C = 0.1\text{mH}$ $T_j = 100^\circ\text{C}$				

\* Pulsed: Pulse duration = 300  $\mu\text{s}$ , duty cycle = 2 %

**TO-3 (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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