

**SILICON NPN TRANSISTOR**

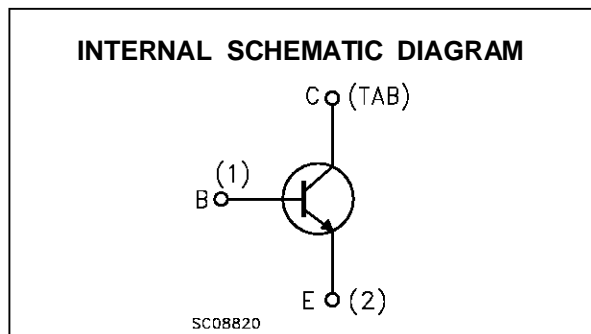
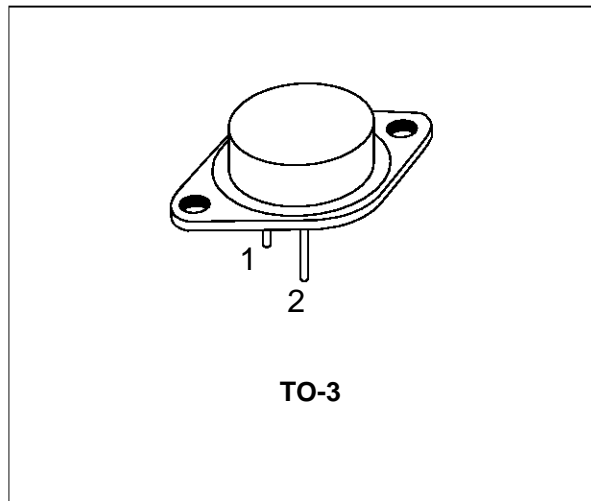
- SGS-THOMSON PREFERRED SALESTYPE

**APPLICATIONS**

- SWITCHING REGULATORS
- INVERTERS
- SOLENOID AND RELAY DRIERS
- MOTOR CONTROLS
- DEFLECTION CIRCUITS

**DESCRIPTIONS**

- High voltage, high speed switching power transistor suited for use on the 220 and 380V mains.



**ABSOLUTE MAXIMUM RATINGS**

Symbol	Parameter	Value	Unit
$V_{CEV}$	Collector-Emitter Voltage ( $V_{BE} = -1.5V$ )	650	V
$V_{CEX}$	Collector-Emitter Voltage	450	V
$V_{CEO}$	Collector-Emitter Voltage ( $I_B = 0$ )	400	V
$V_{EBO}$	Emitter-Base Voltage ( $I_C = 0$ )	8	V
$I_C$	Collector Current	8	A
$I_{CM}$	Collector Peak Current	10	A
$I_B$	Base Current	4	A
$P_{tot}$	Total Dissipation at $T_c \leq 25^\circ C$	150	W
$T_{stg}$	Storage Temperature	-65 to 200	$^\circ C$
$T_j$	Max. Operating Junction Temperature	200	$^\circ C$

## THERMAL DATA

$R_{thj-case}$	Thermal Resistance Junction-case	Max	1	$^{\circ}C/W$
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ELECTRICAL CHARACTERISTICS ( $T_{case} = 25^{\circ}C$  unless otherwise specified)

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
$I_{CEV}$	Collector Cut-off Current ( $V_{BE} = -1.5V$ )	$V_{CE} = 650 V$ $V_{CE} = 650 V \quad T_c = 125^{\circ}C$			0.1 1	mA mA
$I_{EBO}$	Emitter Cut-off Current ( $I_C = 0$ )	$V_{EB} = 8 V$			2	mA
$V_{CEO(sus)}^*$	Collector-Emitter Sustaining Voltage	$I_C = 200 mA \quad L_C = 25 mH$	400			V
$V_{CEX(clamp)}$	Collector-Emitter Clamping Voltage	$V_{BB} = -5 V \quad L_C = 170 \mu H \quad R_{BB} = 5 \Omega$ $I_C = 5 A \quad I_{B1} = -I_{B21} = 1 A$ $I_C = 8 A \quad I_{B1} = -I_{B21} = 3 A$	450 300			V V
$V_{CE(sat)}^*$	Collector-Emitter Saturation Voltage	$I_C = 5 A \quad I_B = 1 A$ $I_C = 8 A \quad I_B = 4 A$ $I_C = 5 A \quad I_B = 1 A \quad T_c = 100^{\circ}C$			1 2 2	V V V
$V_{BE(sat)}^*$	Base-Emitter Saturation Voltage	$I_C = 5 A \quad I_B = 1 A$			1.6	V
$h_{FE}^*$	DC Current Gain	$I_C = 5 A \quad V_{CE} = 3 V$	10		40	
$h_{fe}$	Small Signal Current Gain	$I_C = 0.2 A \quad V_{CE} = 10 V \quad f = 1 MHz$	3		12	

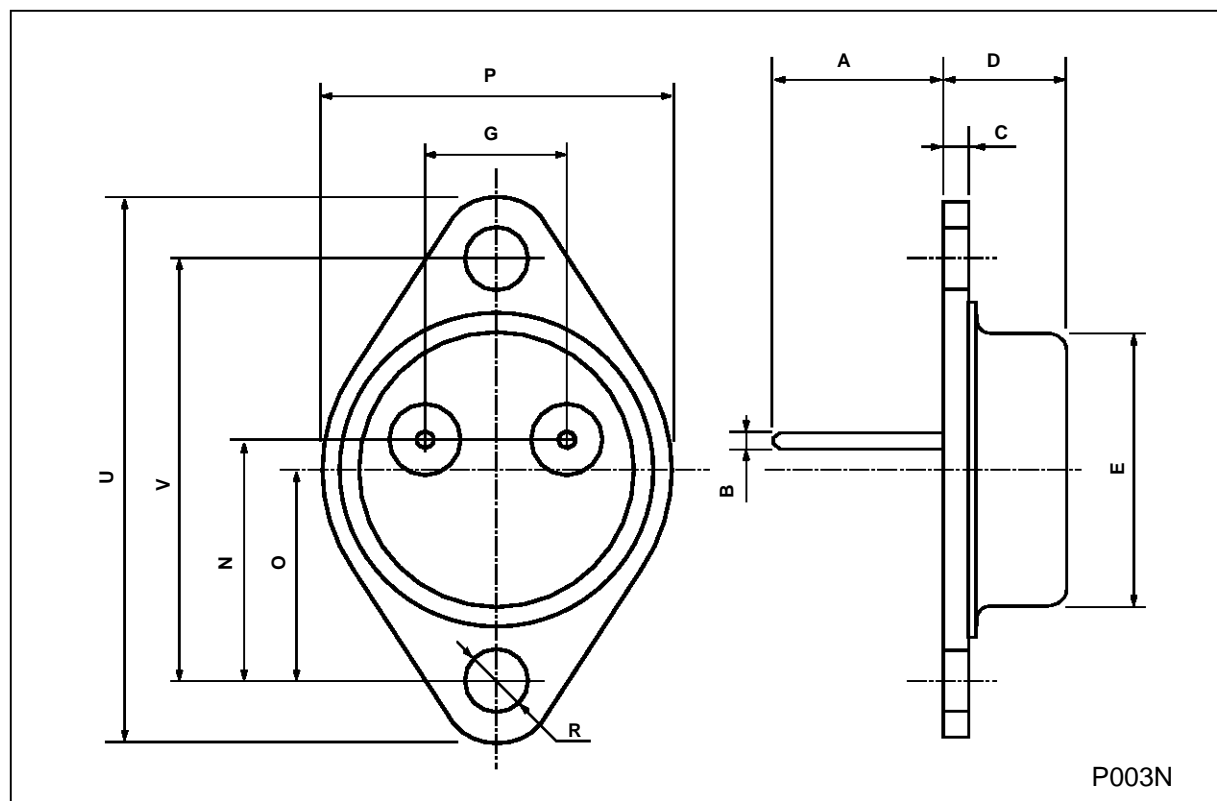
## RESISTIVE LOAD

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
$t_d$	Delay Time	$V_{CC} = 125 V \quad I_C = 5 A \quad t_p = 20 \mu s$			0.1	$\mu s$
$t_r$	Rise Time	$V_{BB} = -6 V \quad I_{B1} = 1 A$			0.5	$\mu s$
$t_r$	Rise Time	$V_{CC} = 125 V \quad I_C = 5 A \quad t_p = 20 \mu s$ $V_{BB} = -6 V \quad I_{B1} = 1 A \quad T_c = 125^{\circ}C$			0.8	$\mu s$
$t_s$	Storage Time	$V_{CC} = 125 V \quad I_C = 5 A \quad t_p = 20 \mu s$			2.5	$\mu s$
$t_f$	Fall Time	$V_{BB} = -6 V \quad I_{B1} = -I_{B2} = 1 A$			0.4	$\mu s$
$t_s$	Storage Time	$V_{CC} = 125 V \quad I_C = 5 A \quad t_p = 20 \mu s$			4	$\mu s$
$t_f$	Fall Time	$V_{BB} = -6 V \quad I_{B1} = -I_{B2} = 1 A$ $T_c = 100^{\circ}C$			0.8	$\mu s$

\* Pulsed: Pulse duration = 300  $\mu s$ , duty cycle 1.5 %

## TO-3 (H) MECHANICAL DATA

DIM.	mm			inch		
	MIN.	TYP.	MAX.	MIN.	TYP.	MAX.
A		11.7			0.460	
B	0.96		1.10	0.037		0.043
C			1.70			0.066
D			8.7			0.342
E			20.0			0.787
G		10.9			0.429	
N		16.9			0.665	
P			26.2			1.031
R	3.88		4.09	0.152		0.161
U			39.50			1.555
V		30.10			1.185	



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