

SILICON NPN TRANSISTOR

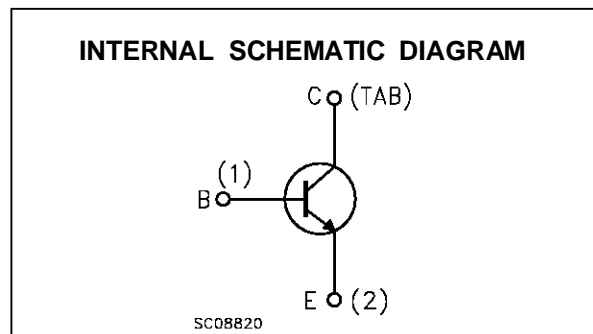
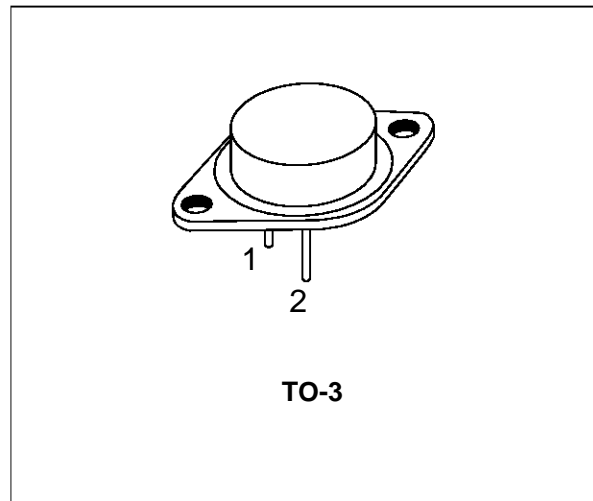
- SGS-THOMSON PREFERRED SALESTYPE

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	15	A
I_{CM}	Collector Peak Current	20	A
I_B	Base Current	5	A
P_{tot}	Total Dissipation at $T_c \leq 25^\circ C$	175	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	°C/W
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ELECTRICAL CHARACTERISTICS (T_{case} = 25 °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 T _c = 100 °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 L _C = 25 mH	400			V
V _{CEx(sus)}	Collector-Emitter Sustaining Voltage	V _{BB} = -6 V L _C = 50 μH R _{BB} = 2 Ω I _C = 15 A I _B = 3 A	450			V
V _{CE(sat)*}	Collector-Emitter Saturation Voltage	I _C = 15 A I _B = 3 A I _C = 15 A I _B = 3 A T _c = 100 °C			1 2	V V
V _{BE(sat)*}	Base-Emitter Saturation Voltage	I _C = 15 A I _B = 3 A			1.5	V
h _{FE*}	DC Current Gain	I _C = 15 A V _{CE} = 3 V	8			
h _{fe}	Small Signal Current Gain	I _C = 1 A V _{CE} = 10 V f = 5 MHz	3		10	

RESISTIVE LOAD

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
t _d	Delay Time	V _{CC} = 200 V I _C = 15 A t _p = 20 μs			0.1	μs
t _r	Rise Time	V _{BB} = -6 V I _{B1} = 3 A			0.6	ms
t _r	Rise Time	V _{CC} = 200 V I _C = 15 A t _p = 20 μs V _{BB} = -6 V I _{B1} = 3 A T _c = 100 °C			1	μs
t _s	Storage Time	V _{CC} = 200 V I _C = 15 A t _p = 20 μs			2.5	μs
t _f	Fall Time	V _{BB} = -6 V I _{B1} = -I _{B2} = 3 A			0.5	ms
t _s	Storage Time	V _{CC} = 200 V I _C = 15 A t _p = 20 μs			4	μs
t _f	Fall Time	V _{BB} = -6 V I _{B1} = -I _{B2} = 3 A T _c = 100 °C			1	ms

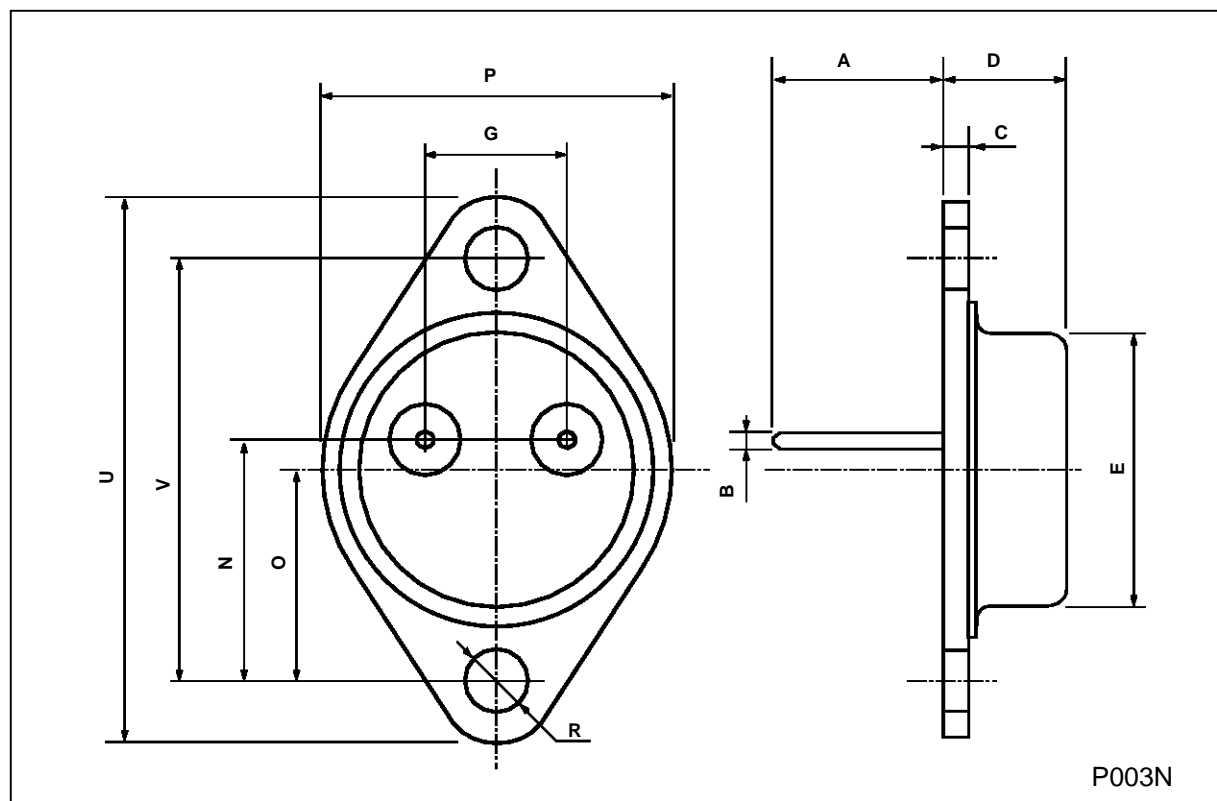
INDUCTIVE LOAD

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
t _c	Crossover Time	V _{CC} = 200 V I _C = 15 A L _C = 50 μH R _C = 13.5 Ω I _{B1} = -I _{B2} = 3 A V _{clamp} = 450 V			0.5	μs
t _c	Crossover Time	V _{CC} = 200 V I _C = 15 A L _C = 50 μH R _C = 13.5 Ω I _{B1} = -I _{B2} = 3 A V _{clamp} = 450 V T _c = 100 °C			0.8	μs

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

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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