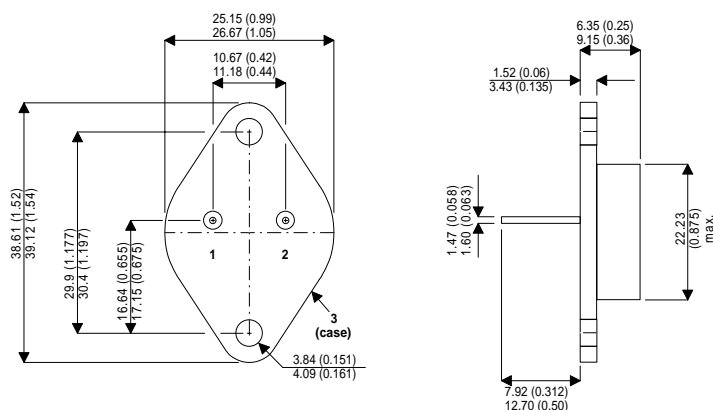


MECHANICAL DATA

Dimensions in mm(inches)



NPN SILICON POWER TRANSISTOR

FEATURES

- HIGH CURRENT
- FAST SWITCHING
- HIGH RELIABILITY

APPLICATIONS

- POWER SWITCHING CIRCUITS
- MOTOR CONTROL

TO-204AE (TO-3)

PIN 1 — Base PIN 2 — Emitter Case is Collector.

ABSOLUTE MAXIMUM RATINGS ($T_{case} = 25^{\circ}C$ unless otherwise stated)

V_{CBO}	Collector – Base Voltage ($I_E = 0$)	500V
V_{CEX}	Collector – Emitter Voltage ($V_{BE} = -1.5V$)	500V
V_{CEO}	Collector – Emitter Voltage ($I_B = 0$)	500V
V_{CER}	Collector – Emitter Voltage ($R_{BE} = 100\Omega$)	500V
V_{EBO}	Emitter – Base Voltage ($I_C = 0$)	7V
I_C	Collector Current	15A
I_{CM}	Peak Collector Current ($t_p = 10$ ms)	20A
I_B	Base Current	3A
P_{tot}	Total Power Dissipation at $T_{case} \leq 25^{\circ}C$	350W
T_{stg}	Storage Temperature	-65 to 200°C
T_j	Junction Temperature	200°C
$R_{\theta JC}$	Thermal Resistance Junction to Case	0.5°C/W

Semelab Plc reserves the right to change test conditions, parameter limits and package dimensions without notice. Information furnished by Semelab is believed to be both accurate and reliable at the time of going to press. However Semelab assumes no responsibility for any errors or omissions discovered in its use. Semelab encourages customers to verify that datasheets are current before placing orders.

ELECTRICAL CHARACTERISTICS ($T_{case} = 25^{\circ}C$ unless otherwise stated)

Parameter	Test Conditions	Min.	Typ.	Max.	Unit
$V_{CEO(BR)^*}$	Collector - Emitter Breakdown Voltage $I_C = 200mA$	500			V
V_{EBO}	Emitter – Base Voltage $I_E = 50mA$ $I_C = 0$	7			V
I_{CEO}	Collector Cut-off Current $V_{CE} = 400V$ $I_B = 0$			3	mA
I_{CEX}	Collector Cut-off Current $V_{CE} = 500V$ $V_{BE} = -1.5V$ $T_C = 125^{\circ}C$			3 12	mA
I_{EBO}	Emitter Cut-off Current $I_C = 0$ $V_{EB} = 5V$			1.0	mA
$V_{CE(sat)^*}$	Collector – Emitter Saturation Voltage $I_C = 4A$ $I_B = 0.8A$		0.2	0.6	V
	$I_C = 8A$ $I_B = 1.6A$		0.6	1.0	
$V_{BE(sat)^*}$	Base – Emitter Saturation Voltage $I_C = 8A$ $I_B = 1.6A$		1.2	1.5	V
h_{FE}^*	DC Current Gain $V_{CE} = 4V$ $I_C = 4A$	15		60	—
	$V_{CE} = 4V$ $I_C = 8A$	8			
$I_{S/b}$	Second Breakdown Collector Current $V_{CE} = 140V$ $t = 1s$	0.15			A
	$V_{CE} = 25V$ $t = 1s$	14			
f_T	Transition Frequency $I_C = 2A$ $V_{CE} = 15V$ $f = 10MHz$	8			MHz
t_{on}	Turn-On Time $I_C = 8A$ $I_{B1} = 1.6A$		0.9	1.8	μs
t_s	Storage Time $I_C = 8A$ $I_{B1} = 1.6A$ $I_{B2} = -1.6A$		3.5	5	
t_f	Fall Time $I_C = 8A$ $I_{B1} = 1.6A$ $I_{B2} = -1.6A$		0.9	1.6	

(*) Pulse test: $t_p \leq 300\mu s$, $\delta \leq 2\%$

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