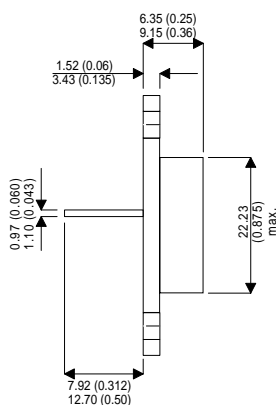
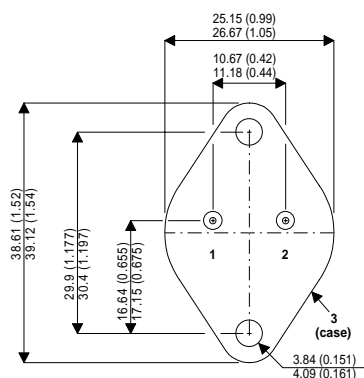


**MECHANICAL DATA**

Dimensions in mm

# NPN SILICON POWER TRANSISTOR



**FEATURES**

- Low saturation voltages.
- High current gain at 40A. (20 Typ.)
- Hermetic metal package.

**APPLICATIONS**

- High power switching circuits.
- Switching regulators.
- Motor drive controls.

**TO3 (TO-204AA)**

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 ( $I_E = 0$ )	275V
$V_{CEO}$	Collector – Emitter Voltage ( $I_B = 0$ )	250V
$V_{EBO}$	Emitter – Base Voltage ( $I_C = 0$ )	10V
$I_C$	Continuous Collector Current	50A
$I_{C(PK)}$	Peak Collector Current	70A
$I_C$	Continuous Base Current	10A
$I_{B(PK)}$	Peak Base Current	15A
$P_{tot}$	Total Dissipation at $T_{case} = 25^{\circ}C$	175W
$T_{stg}$	Operating and Storage Temperature Range	-65 to +200°C
$R_{\theta JC}$	Thermal Resistance Junction to Case	1.0°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
<b>ELECTRICAL CHARACTERISTICS</b>					
$V_{CEO(sus)}$ *	Collector – Emitter Sustaining Voltage	$I_C = 200mA$ $I_B = 0$	250		V
$V_{(BR)CBO}$	Collector – Base Breakdown Voltage	$I_C = 100\mu A$ $I_E = 0$	275		
$V_{(BR)EBO}$	Emitter – Base Breakdown Voltage	$I_E = 100\mu A$ $I_C = 0$	10		
$I_{CBO}$	Collector – Base Cut-Off Current	$V_{CB} = 200V$ $I_E = 0$ $T_C = 150^{\circ}C$		10 250	$\mu A$
$h_{FE}$ *	DC Current Gain	$I_C = 40A$ $V_{CE} = 10V$	8	40	—
		$I_C = 50A$ $V_{CE} = 10V$	5		
$V_{CE(sat)}$ *	Collector – Emitter Saturation Voltage	$I_C = 40A$ $I_B = 8A$		1.5	V
$V_{BE(sat)}$ *	Base – Emitter Saturation Voltage	$I_C = 40A$ $I_B = 8A$		2.0	
<b>DYNAMIC CHARACTERISTICS</b>					
$f_t$	Transition Frequency	$I_C = 1.0A$ $V_{CE} = 10V$ $f = 1MHz$	10		MHz
$C_{ob}$	Output Capacitance	$I_E = 0$ $V_{BC} = 10V$ $f = 1MHz$		600	pF
$t_{on}$	Turn On Time	$V_{CC} = 100V$ $I_C = 20A$		1.0	$\mu s$
$t_s$	Storage Time	$I_{B1} = I_{B2} = 2.0A$		2.5	
$t_f$	Fall Time	$t_p = 10\mu s$		0.6	

\* Pulse test  $t_p = 300\mu s$ ,  $\delta < 2\%$