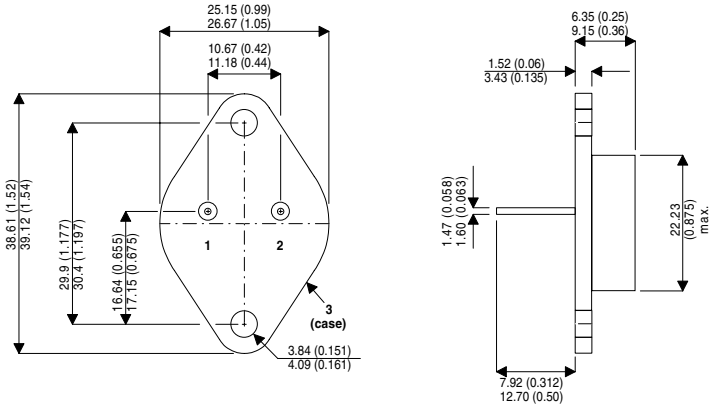
SEME LAB

2N5685

MECHANICAL DATA

Dimensions in mm(inches)



TO–3(TO204AE)

PIN 1 — Base PIN 2 — Emitter Case is Collector

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NPN SILICON POWER TRANSISTOR

FEATURES

- **HIGH CURRENT**
- **LOW SATURATION VOLTAGES**
- **HIGH RELIABILITY**

APPLICATIONS

- **POWER SWITCHING CIRCUITS**
- **POWER AMPLIFIER APPLICATIONS**

ABSOLUTE MAXIMUM RATINGS (T_{case} = 25°C unless otherwise stated)

V_{CBO}	Collector – Base Voltage (I_E = 0)	60V
V_{CEO}	Collector – Emitter Voltage (I_B = 0)	60V
V_{EBO}	Emitter – Base Voltage (I_C = 0)	5.0V
I_C	Collector Current	50A
I_B	Base Current	15A
P_{tot}	Total Power Dissipation at $T_{case} \leq$ 25°C	300W
	Derate above 25°C	1.715 W/°C
T_{stg},	Storage Temperature	–65 to 200°C
T_j	Junction Temperature	200°C

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ELECTRICAL CHARACTERISTICS (T_{case} = 25°C unless otherwise stated)

	Parameter	Test Conditions		Min.	Typ.	Max.	Unit
$V_{CEO(BR)}$*	Collector - Emitter Breakdown Voltage	I_C = 200mA		60			V
I_{CEO}	Collector Cut-off Current	V_{CE} = 30V	I_B = 0			1.0	mA
I_{CEX}	Collector Cut-off Current	V_{CE} = 60V	V_{BE} = 1.5V			2	mA
			T_{CASE} =150°C			10	
I_{CBO}	Collector Cut-off Current	V_{CB} = 60V	I_E = 0			2	mA
I_{EBO}	Emitter Cut-off Current	V_{BE} = 5V	I_C = 0			5	mA
$V_{CE(sat)}$*	Collector – Emitter Saturation Voltage	I_C = 25A	I_B = 2.5A			1.0	V
		I_C = 50A	I_B = 10A			5.0	
$V_{BE(sat)}$*	Base – Emitter Saturation Voltage	I_C = 25A	I_B = 2.5A			2	V
$V_{BE(on)}$*	Emitter Base on Voltage	I_C = 25A	V_{CE} = 2V			2	V
h_{FE}*	DC Current Gain	I_C = 25A	V_{CE} = 2V	15		60	—
		I_C = 50A	V_{CE} = 5V	5			
h_{fe}	Small Signal Current Gain	I_C = 10A V_{CE} = 5V	f = 1.0 kHz	15			—
C_{cbo}	Collector Base Capacitance	V_{CB} = 10V	I_E = 0			1200	pF
		f =0.1 MHz					
f_T	Current Gain Bandwidth product	I_C = 5A V_{CE} = 10V	f = 1.0 MHz	2			MHz

THERMAL CHARACTERISTICS

$R_{\theta JC}$	Thermal Resistance Junction to Case	Max	0.584	°C/W

* Pulse test t_p = 300μs , δ = 1.5 %

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