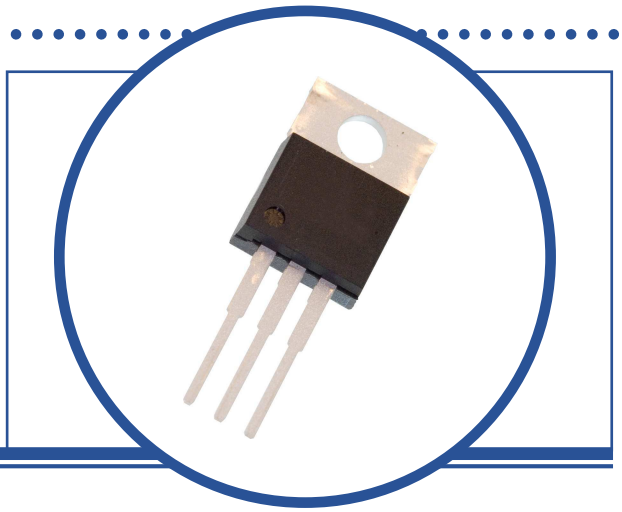
SILICON
NPN TRANSISTOR

TT electronics
Semelab Limited

SM58B

- Advanced Distributed Base Technology
- Designed For Use In Electronic Ballast Applications
- Efficient Power Switching



ABSOLUTE MAXIMUM RATINGS (T_C = 25°C unless otherwise stated)

BV_{CBO}	Collector – Base Breakdown Voltage		180V
BV_{CEO}	Collector – Emitter Breakdown Voltage		90V
BV_{EBO}	Emitter – Base Breakdown Voltage		10V
I_C	Collector Current		12A
I_{CM}	Maximum Collector Current		17A
I_B	Base Current		4A
P_D	Total Power Dissipation at	T_C = 25°C	50W
		Derate Above 25°C	0.4 W/°C
T_J	Junction Temperature Range		-55 to +150°C
T_{stg}	Storage Temperature Range		-55 to +150°C

THERMAL PROPERTIES

Symbols	Parameters	Min.	Typ.	Max.	Units
$R_{\theta JC}$	Thermal Resistance, Junction To Case			2.5	°C/W

SEMELAB
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ELECTRICAL CHARACTERISTICS (T_C = 25°C unless otherwise stated)

Symbols	Parameters	Test Conditions		Min.	Typ	Max.	Units
I_{CBO}	Collector-Base Leakage Current	V_{CB} = 180V				10	µA
		T_C = 125°C				100	
I_{CEO}	Collector-Emitter Leakage Current	V_{CE} = 80V				100	
I_{EBO}	Emitter-Base Leakage Current	V_{EB} = 9V				10	
$V_{(BR)CBO}$	Collector-Base Breakdown Voltage	I_C = 1.0mA		180			V
$V_{(BR)CEO}$	Collector-Emitter Breakdown Voltage	I_C = 10mA		90			
$V_{(BR)EBO}$	Emitter-Base Breakdown Voltage	I_E = 1.0mA		10			
$V_{BE(sat)}$ [1]	Base-Emitter Saturation Voltage	I_C = 3A	I_B = 0.3A		0.9	1.1	
		I_C = 6A	I_B = 0.6A		1.2	2.0	
$V_{CE(sat)}$ [1]	Collector-Emitter Saturation Voltage	I_C = 1.0A	I_B = 0.1A		0.1	0.2	
		I_C = 3.0A	I_B = 0.3A		0.3	0.6	
		I_C = 6.0A	I_B = 0.6A		1.0	1.5	
h_{FE} [1]	DC Current Gain	I_C = 0.3A	V_{CE} = 5.0V	26		80	-
		I_C = 3.0A	V_{CE} = 5.0V	25		60	
		I_C = 5.0A	V_{CE} = 1.0V	8			

DYNAMIC CHARACTERISTICS

f_T	Transition Frequency	I_C = 0.2A	V_{CE} = 4.0V		20		MHz
C_{obo}	Output Capacitance	V_{CB} = 10V	f = 1.0MHz		44		pF

Notes
(1) Pulse Width ≤ 300us, δ ≤ 2%

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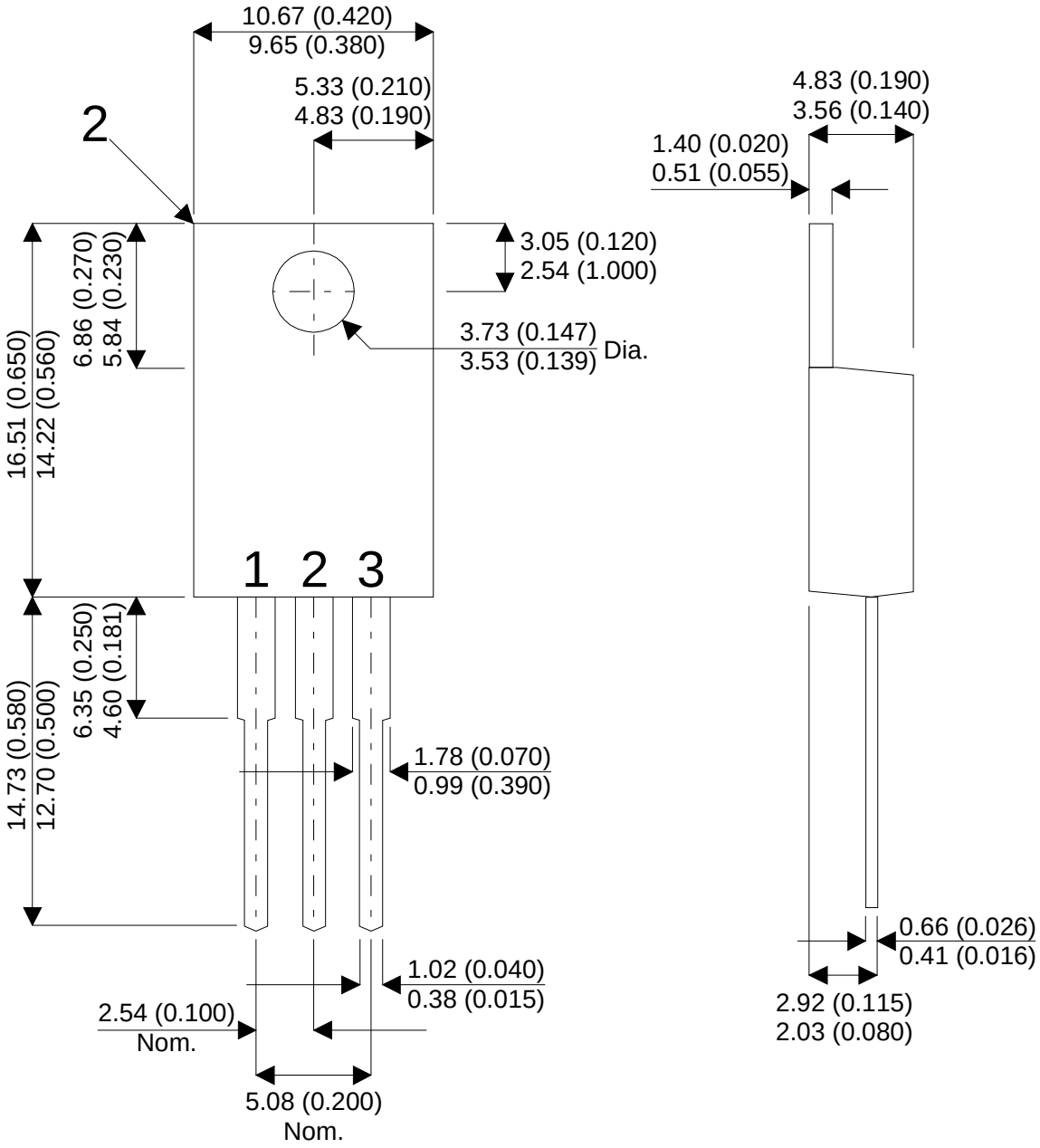
MECHANICAL DATA

Dimensions in mm (inches)



TO-220

Lead 1 – Base Lead 2 - Collector Lead 3 - Emitter