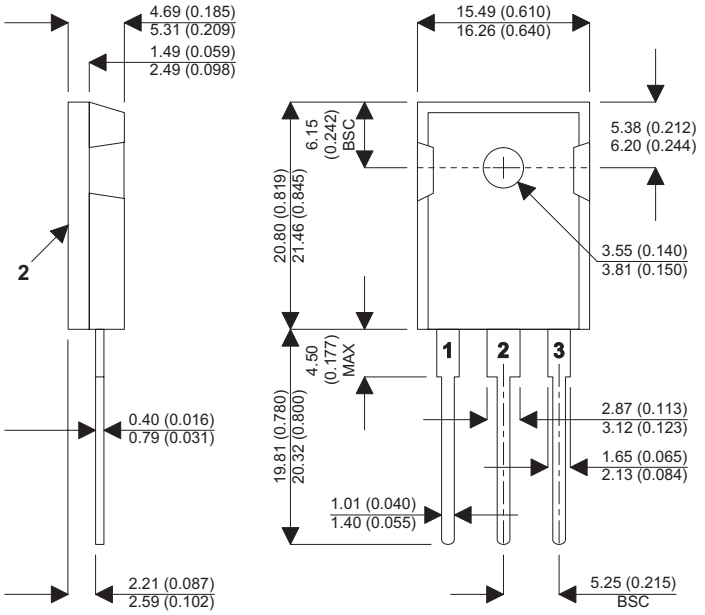
SML6686

MECHANICAL DATA

Dimensions in mm (inches)



TO–247

PIN 1 – Base PIN 2 – Collector PIN 3 – Emitter.

NPN MULTI-EPITAXIAL POWER TRANSISTOR

FEATURES

- **LOW $V_{CE(sat)}$**
- **FAST SWITCHING**
- **HIGH CURRENT**
- **HIGH RELIABILITY**

APPLICATIONS

- **HIGH FREQUENCY AND EFFICIENCY CONVERTERS**
- **SWITCHING REGULATORS**
- **MOTOR CONTROLS**

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

V_{CEX}	Collector – Emitter Voltage (V_{BE} = -1.5V)	300V
V_{CEO}	Collector – Emitter Voltage (I_B = 0)	160V
V_{EBO}	Emitter – Base Voltage	7V
I_C	Collector Current	30A
$I_{C(PK)}$	Peak Collector Current	40A
I_B	Base Current	8A
$I_{B(pk)}$	Peak Base Current	15A
P_{tot}	Total Dissipation at T_{case} = 25°C	175W
T_{STG}	Storage Temperature Range	–55 to 200°C
T_J	Maximum Operating Junction Temperature	200°C
R_{qJC}	Thermal Resistance (Junction – Case)	0.875°C/W Max.

Semelab plc. Telephone +44(0)1455 556565. Fax +44(0)1455 552612.
E-mail: sales@semelab.co.uk Website: http://www.semelab.co.uk

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

Parameter		Test Conditions		Min.	Typ.	Max.	Unit
$V_{CEO(sus)}$	Collector - Emitter Sustaining Voltage	I_C = 0.2A L = 25mH	I_B = 0	160			V
$V_{(BR)EBO}$	Emitter – Base Breakdown Voltage	I_C = 0	I_E = 1mA	7			V
I_{CEX}	Collector Cut-off Current	$V_{CE} = V_{CEX}$ V_{BE} = –1.5V				1.0	mA
			T_J = 100°C			4.0	
I_{CER}	Collector Cut-off Current	R_{BE} = 10R	$V_{CE} = V_{CEX}$			1.0	
			T_J = 100°C			5.0	
I_{EBO}	Emitter Cut-off Current	I_C = 0	V_{BE} = –5V			0.5	mA
$V_{CE(sat)}$*	Collector – Emitter Saturation Voltage	I_C = 25A	I_B = 2.5A		0.5	0.9	V
			T_J = 100°C			1.5	
$V_{BE(sat)}$*	Base – Emitter Saturation Voltage	I_C = 25A	I_B = 2.5A		1.2	1.5	V
			T_J = 100°C			1.4	

* Pulse Test: t_p = 300μs, $\delta \leq 2\%$

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

Parameter		Test Conditions	Min.	Typ.	Max.	Unit
Switching Characteristics (Resistive Load)						
t_r	Rise Time	I_C = 20A			0.8	μs
t_s	Storage Time	$I_{B1} = I_{B2}$ = 2.5A			2.2	
t_f	Fall Time	V_{CC} = 80V			0.6	

Preliminary Datasheet

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