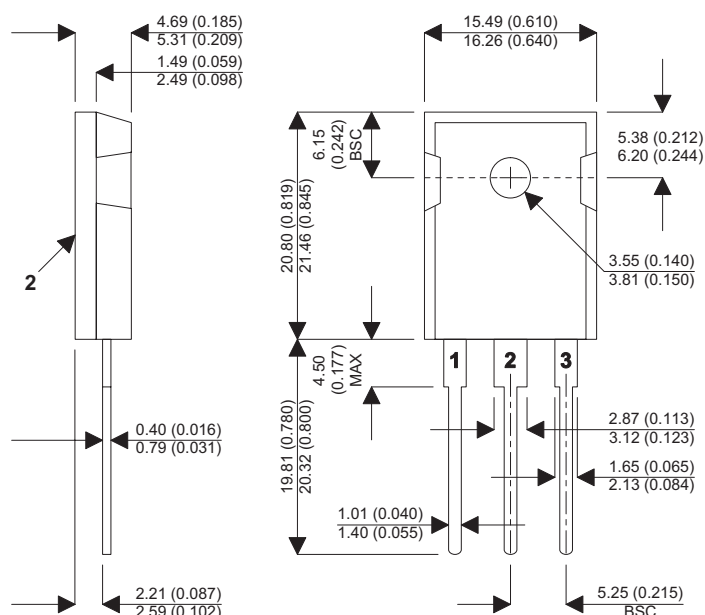


### MECHANICAL DATA

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 ( $T_{case} = 25^{\circ}C$ 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 $T_{case} = 25^{\circ}C$	175W
$T_{STG}$	Storage Temperature Range	$-55$ to $200^{\circ}C$
$T_J$	Maximum Operating Junction Temperature	$200^{\circ}C$
$R_{qJC}$	Thermal Resistance (Junction – Case)	$0.875^{\circ}C/W$ Max.

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.

**Semelab plc.** Telephone +44(0)1455 556565. Fax +44(0)1455 552612.

E-mail: [sales@semelab.co.uk](mailto:sales@semelab.co.uk) Website: <http://www.semelab.co.uk>

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Issue 1

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

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

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

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

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

Preliminary Datasheet