



HIGH VOLTAGE FAST-SWITCHING NPN POWER TRANSISTOR

PRELIMINARY DATA

- HIGH VOLTAGE CAPABILITY
- NPN TRANSISTOR
- LOW SPREAD OF DYNAMIC PARAMETERS
- MINIMUM LOT-TO-LOT SPREAD FOR RELIABLE OPERATION
- VERY HIGH SWITCHING SPEED
- FULLY CHARACTERIZED AT 125 °C

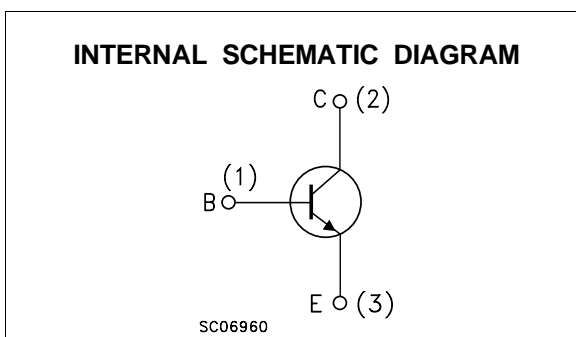
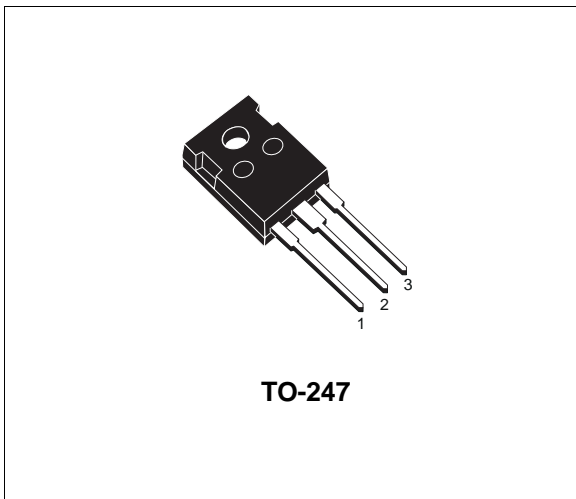
APPLICATIONS

- SWITCH MODE POWER SUPPLIES

DESCRIPTION

The device is manufactured using high voltage Multi Epitaxial Planar technology for high switching speeds and high voltage capability.

They use a Cellular Emitter structure to enhance switching speeds.



ABSOLUTE MAXIMUM RATINGS

Symbol	Parameter	Value	Unit
V_{CEV}	Collector-Emitter Voltage ($V_{BE} = -1.5V$)	700	V
V_{CEO}	Collector-Emitter Voltage ($I_B = 0$)	400	V
V_{EBO}	Emitter-Base Voltage ($I_C = 0$)	12	V
I_C	Collector Current	12	A
I_{CM}	Collector Peak Current	24	A
I_B	Base Current	6	A
I_{BM}	Base Peak Current	12	A
P_{tot}	Total Dissipation at $T_c \leq 25$ °C	125	W
T_{stg}	Storage Temperature	-65 to 150	°C
T_j	Max. Operating Junction Temperature	150	°C

THERMAL DATA

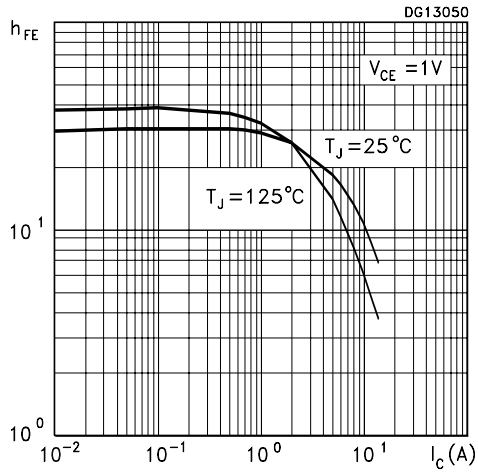
$R_{thj-case}$	Thermal Resistance Junction-case	Max	1	$^{\circ}C/W$
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ELECTRICAL CHARACTERISTICS ($T_{case} = 25^{\circ}C$ unless otherwise specified)

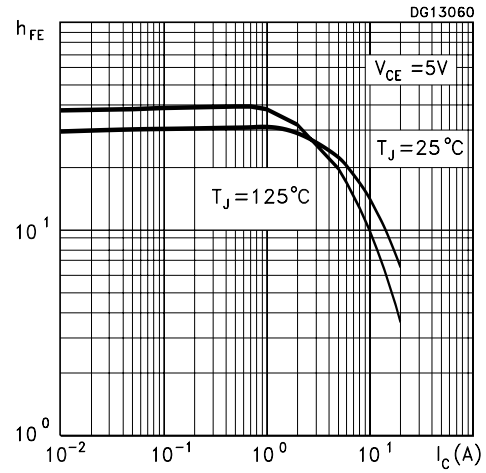
Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit	
I_{CEV}	Collector Cut-off Current ($V_{BE} = -1.5V$)	$V_{CE} = 700 V$ $V_{CE} = 700 V \quad T_j = 100^{\circ}C$			10 500	μA μA	
I_{EBO}	Emitter Cut-off Current ($I_C = 0$)	$V_{EB} = 10 V$			10	μA	
$V_{CEO(sus)*}$	Collector-Emitter Sustaining Voltage ($I_B = 0$)	$I_C = 10 mA$	400			V	
$V_{CE(sat)*}$	Collector-Emitter Saturation Voltage	$I_C = 4 A \quad I_B = 0.8 A$ $I_C = 5 A \quad I_B = 1 A$ $I_C = 8 A \quad I_B = 1.6 A$ $I_C = 12 A \quad I_B = 3 A$			0.85 0.9 1.25 2.5	V V V V	
$V_{BE(sat)*}$	Base-Emitter Saturation Voltage	$I_C = 5 A \quad I_B = 1 A$ $I_C = 8 A \quad I_B = 1.6 A$			1.2 1.6	V V	
h_{FE*}	DC Current Gain	$I_C = 5 A \quad V_{CE} = 5 V$ $I_C = 8 A \quad V_{CE} = 5 V$	15 10		40 30		
t_s t_f	INDUCTIVE LOAD Storage Time Fall Time	$I_C = 5 A \quad V_{CL} = 250 V$ $I_{B1} = 1 A \quad I_{B2} = -2 A$ $L = 200 \mu H$			1.6 60	2.5 110	μs ns
t_s t_f	INDUCTIVE LOAD Storage Time Fall Time	$I_C = 5 A \quad V_{CC} = 125 V$ $I_{B1} = - I_{B2} = 1.6 A$ $L = 200 \mu H \quad T_j = 125^{\circ}C$			2.3 110	μs ns	

* Pulsed: Pulse duration = 300 μs , duty cycle 2 %

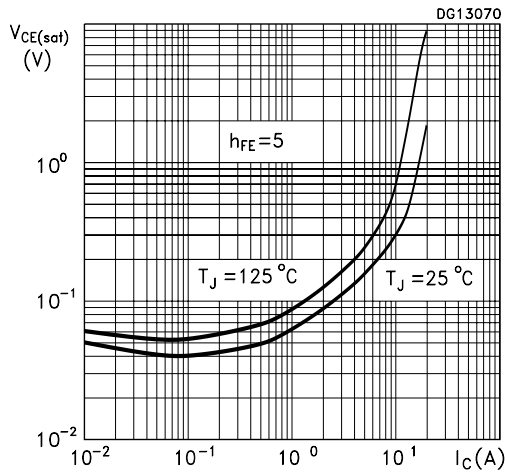
DC Current Gain



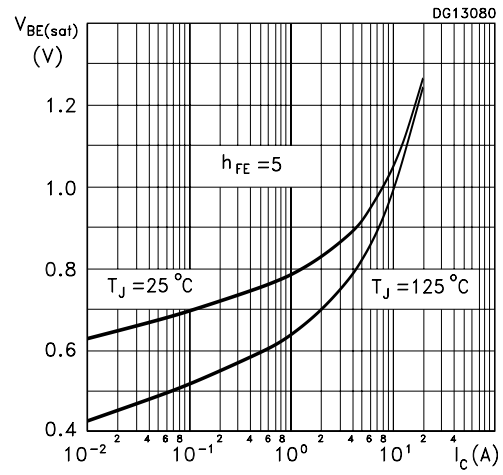
DC Current Gain



Collector-Emitter Saturation Voltage

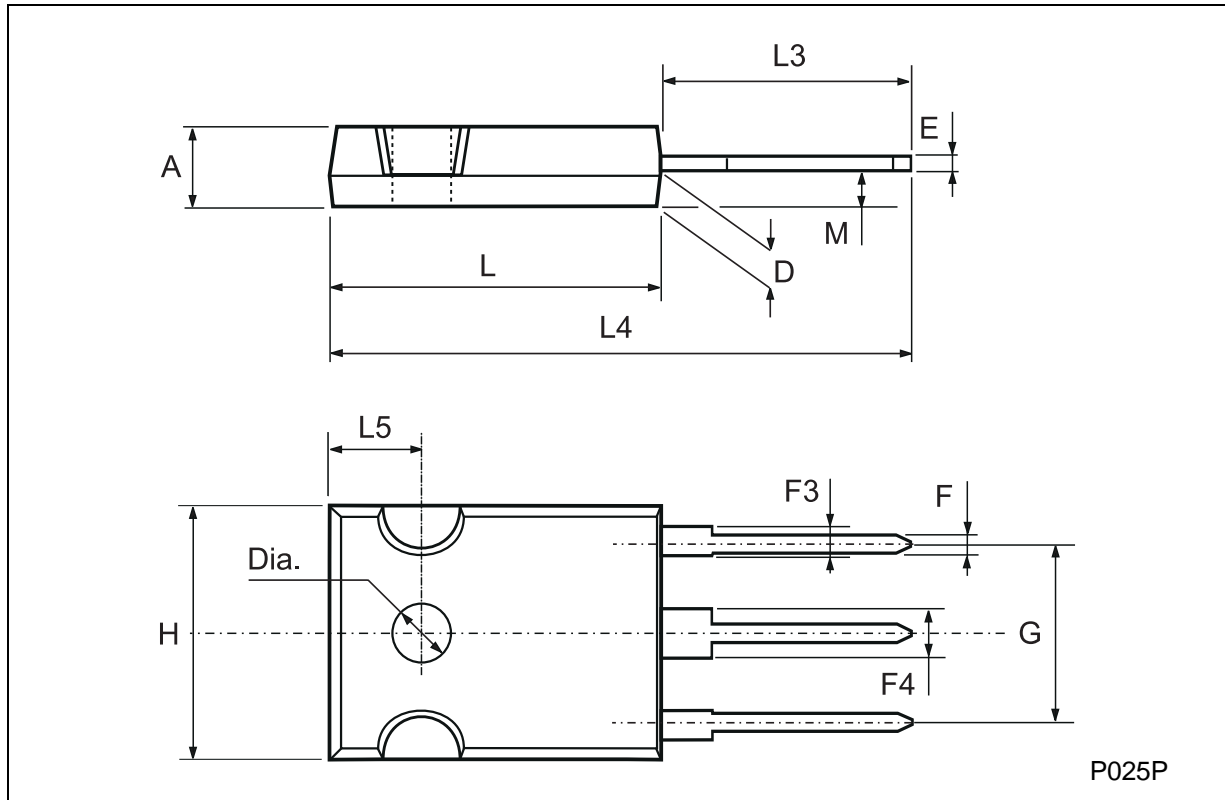


Base-Emitter Saturation Voltage



TO-247 MECHANICAL DATA

DIM.	mm			inch		
	MIN.	TYP.	MAX.	MIN.	TYP.	MAX.
A	4.7		5.3	0.185		0.209
D	2.2		2.6	0.087		0.102
E	0.4		0.8	0.016		0.031
F	1		1.4	0.039		0.055
F3	2		2.4	0.079		0.094
F4	3		3.4	0.118		0.134
G		10.9			0.429	
H	15.3		15.9	0.602		0.626
L	19.7		20.3	0.776		0.779
L3	14.2		14.8	0.559		0.582
L4		34.6			1.362	
L5		5.5			0.217	
M	2		3	0.079		0.118



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