

isc Silicon NPN Power Transistor

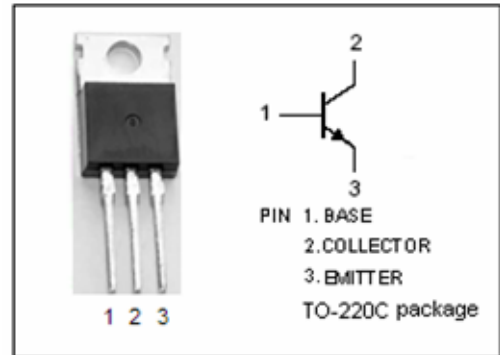
BUT11A

DESCRIPTION

- High Voltage
- High Speed Switching

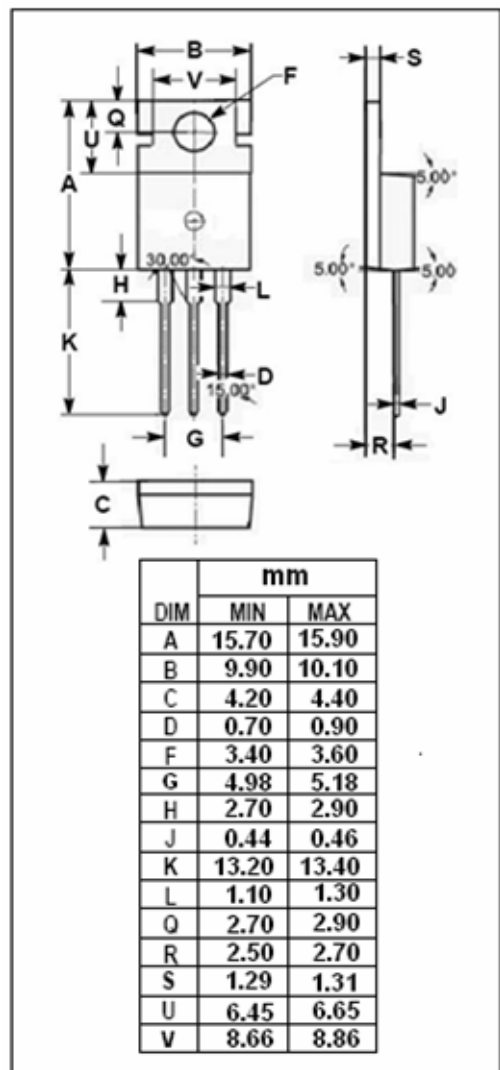
APPLICATIONS

- Converters
- Inverters
- Switching regulators
- Motor control systems



ABSOLUTE MAXIMUM RATINGS (T_a=25°C)

SYMBOL	PARAMETER	VALUE	UNIT
V _{CBO}	Collector-Base Voltage	1000	V
V _{CEO}	Collector-Emitter Voltage	450	V
V _{EBO}	Emitter-Base Voltage	7	V
I _C	Collector Current-Continuous	5	A
I _{CM}	Collector Current-Peak	10	A
I _B	Base Current	2	A
P _C	Collector Power Dissipation @T _C =25°C	100	W
T _j	Junction Temperature	150	°C
T _{stg}	Storage Temperature Range	-65~150	°C



THERMAL CHARACTERISTICS

SYMBOL	PARAMETER	MAX	UNIT
R _{th j-c}	Thermal Resistance, Junction to Case	1.25	°C/W

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ELECTRICAL CHARACTERISTICS

 $T_C=25^{\circ}\text{C}$ unless otherwise specified

SYMBOL	PARAMETER	CONDITIONS	MIN	TYP.	MAX	UNIT
$V_{CEO(SUS)}$	Collector-Emitter Sustaining Voltage	$I_C=0.1\text{A}; I_B=0, L=25\text{mH}$	450			V
$V_{CE(sat)}$	Collector-Emitter Saturation Voltage	$I_C=2.5\text{A}; I_B=0.5\text{A}$			1.5	V
$V_{BE(sat)}$	Base-Emitter Saturation Voltage	$I_C=2.5\text{A}; I_B=0.5\text{A}$			1.3	V
I_{CES}	Collector Cutoff Current	$V_{CE}=\text{Rated } V_{CES}; V_{BE}=0$ $V_{CE}=\text{Rated } V_{CES}; V_{BE}=0; T_C=125^{\circ}\text{C}$			1 2	mA
I_{EBO}	Emitter Cutoff Current	$V_{EB}=9\text{V}; I_C=0$			10	mA
h_{FE-1}	DC Current Gain	$I_C=5\text{mA}; V_{CE}=5\text{V}$	10		35	
h_{FE-2}	DC Current Gain	$I_C=0.5\text{A}; V_{CE}=5\text{V}$	10		35	

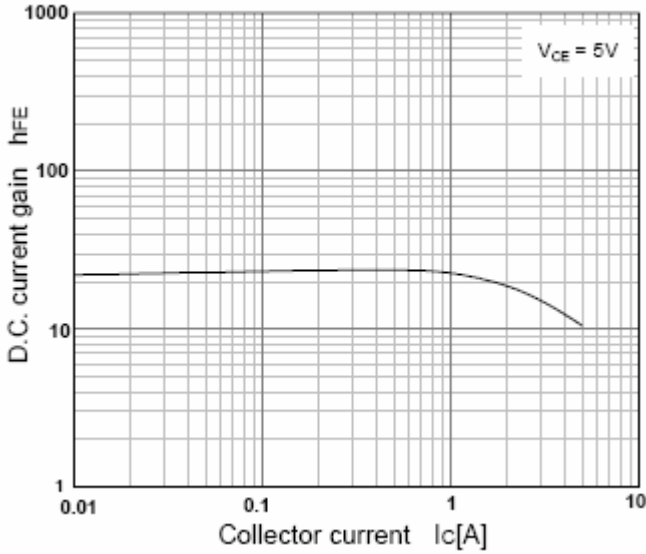
Switching Times ;Resistive Load

t_{on}	Turn-on Time	$I_C=2.5\text{A}; I_{B1}=-I_{B2}=0.5\text{A}$			1.0	μs
t_s	Storage Time				4.0	μs
t_f	Fall Time				0.8	μs

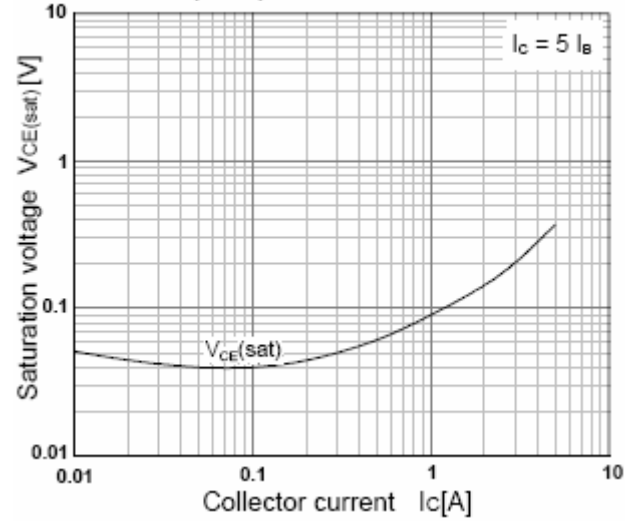
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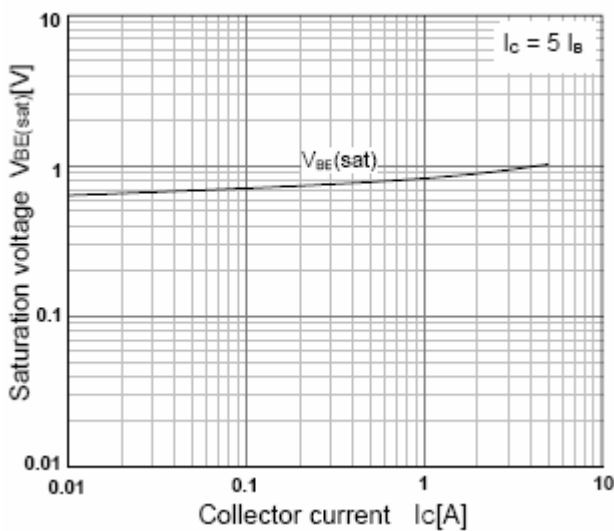
h_{FE} - I_C Characteristics



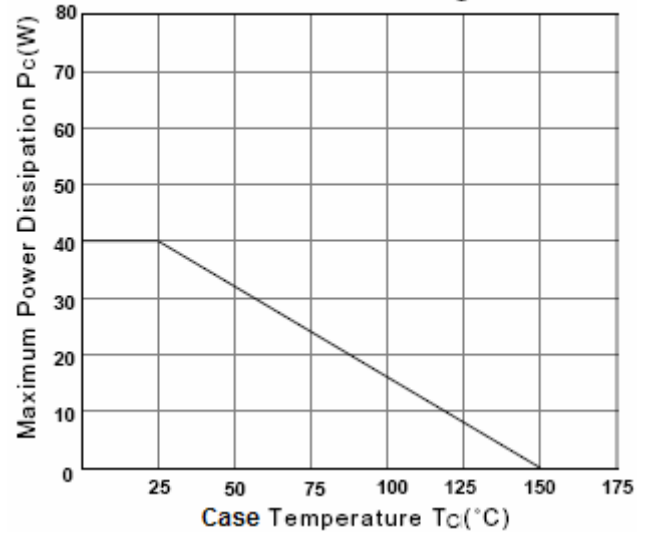
$V_{CE(sat)}$ - I_C Characteristics



$V_{BE(sat)}$ - I_C Characteristics



Power Derating



Safe Operating Area

