

**Silicon NPN Power Transistor**

**2SC3835**

**DESCRIPTION**

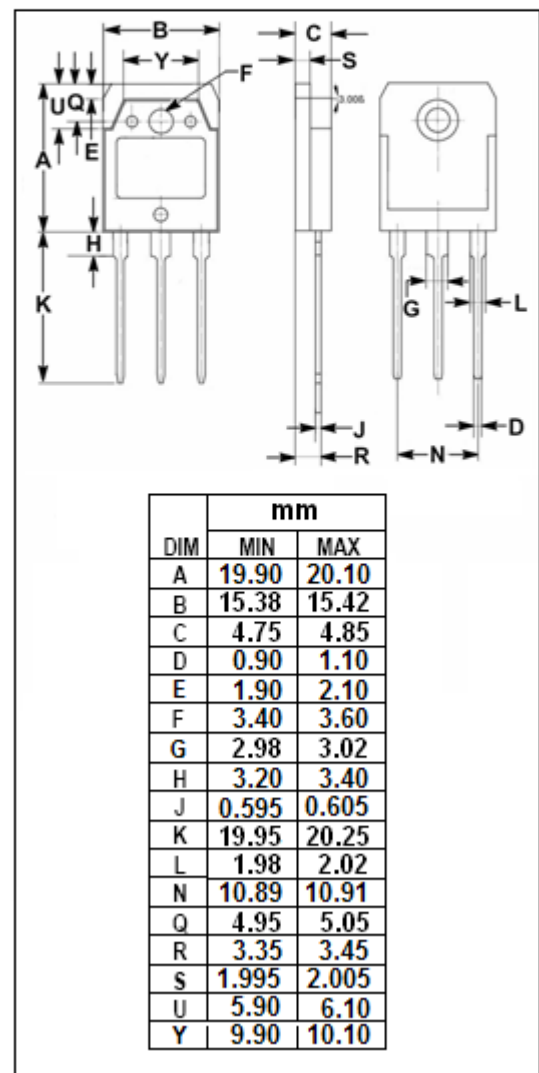
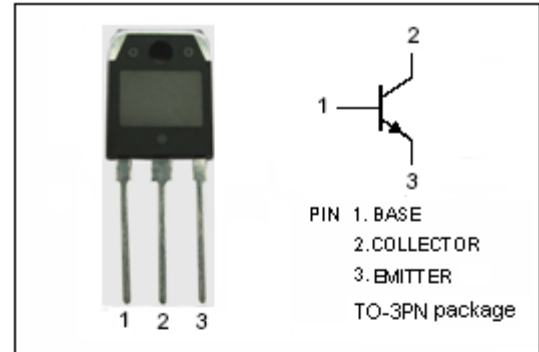
- Low Collector Saturation Voltage  
:  $V_{CE(sat)} = 0.5V(\text{Max}) @ I_C = 3A$
- Collector-Emitter Breakdown Voltage-  
:  $V_{(BR)CEO} = 120V (\text{Min})$
- Good Linearity of  $h_{FE}$

**APPLICATIONS**

- Designed for use in humidifier , DC/DC converter and general purpose applications

**ABSOLUTE MAXIMUM RATINGS( $T_a=25$  )**

SYMBOL	PARAMETER	VALUE	UNIT
$V_{CBO}$	Collector-Base Voltage	200	V
$V_{CEO}$	Collector-Emitter Voltage	120	V
$V_{EBO}$	Emitter-Base Voltage	8	V
$I_C$	Collector Current-Continuous	7	A
$I_{CM}$	Collector Current-Pulse	14	A
$I_B$	Base Current-Continuous	3	A
$P_C$	Collector Power Dissipation @ $T_C=25$	70	W
$T_J$	Junction Temperature	150	
$T_{stg}$	Storage Temperature Range	-55~150	



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## ELECTRICAL CHARACTERISTICS

 $T_C=25$  unless otherwise specified

SYMBOL	PARAMETER	CONDITIONS	MIN	TYP.	MAX	UNIT
$V_{(BR)CEO}$	Collector-Emitter Breakdown Voltage	$I_C=50mA; I_B=0$	120			V
$V_{CE(sat)}$	Collector-Emitter Saturation Voltage	$I_C=3A; I_B=0.3A$			0.5	V
$V_{BE(sat)}$	Base-Emitter Saturation Voltage	$I_C=3A; I_B=0.3A$			1.2	V
$I_{CBO}$	Collector Cutoff Current	$V_{CB}=200V; I_E=0$			100	$\mu A$
$I_{EBO}$	Emitter Cutoff Current	$V_{EB}=8V; I_C=0$			100	$\mu A$
$h_{FE}$	DC Current Gain	$I_C=3A; V_{CE}=4V$	70		220	
$f_T$	Current-Gain—Bandwidth Product	$I_E=-0.5A; V_{CE}=12V$		30		MHz
$C_{OB}$	Output Capacitance	$I_E=0; V_{CB}=10V; f_{test}=1.0MHz$		110		pF

## Switching times

$t_{on}$	Turn-on Time	$I_C=3A; I_{B1}=0.3A; I_{B2}=-0.6A$ $R_L=16.7; V_{CC}=50V$			0.5	$\mu s$
$t_{stg}$	Storage Time				3.0	$\mu s$
$t_f$	Fall Time				0.5	$\mu s$

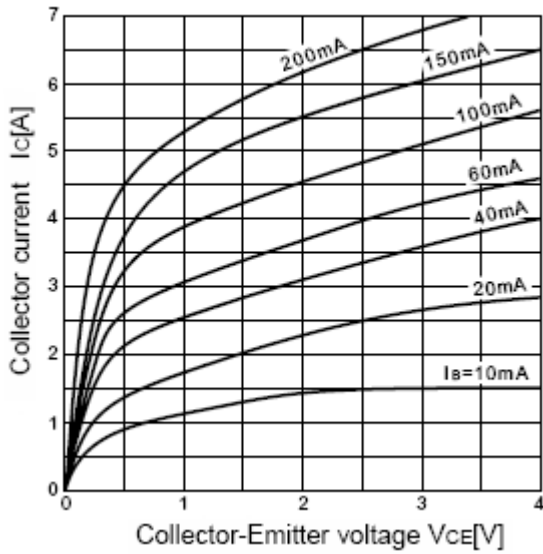
◆  $h_{FE}$  Classifications

O	Y	G
70-120	100-200	160-220

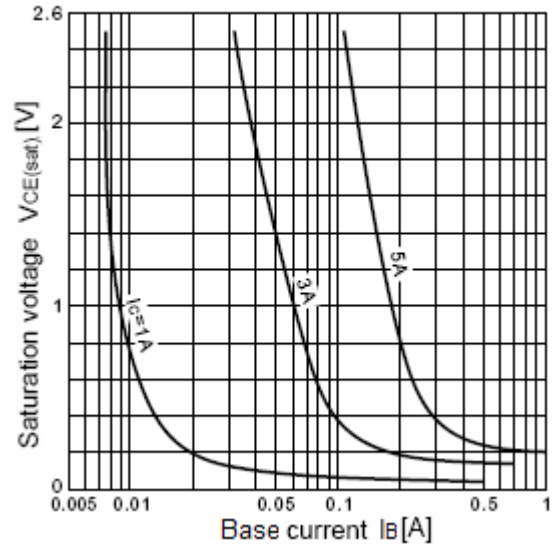
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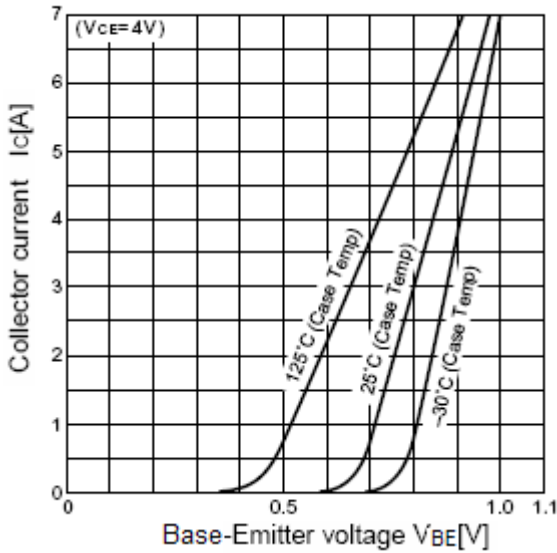
**$I_C$ - $V_{CE}$  Characteristics**



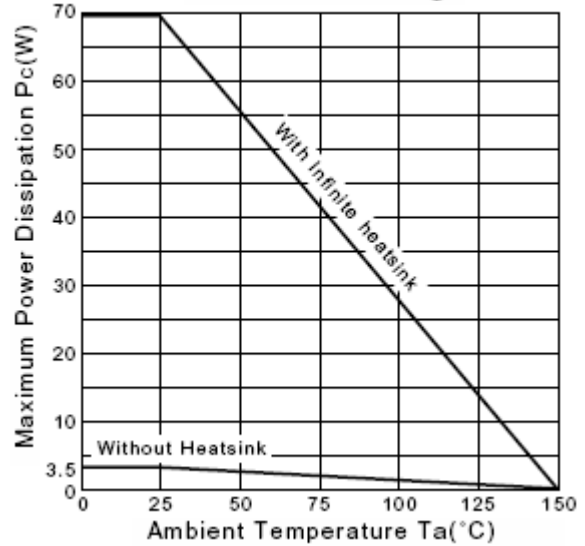
**$V_{CE(sat)}$ - $I_B$  Characteristics**



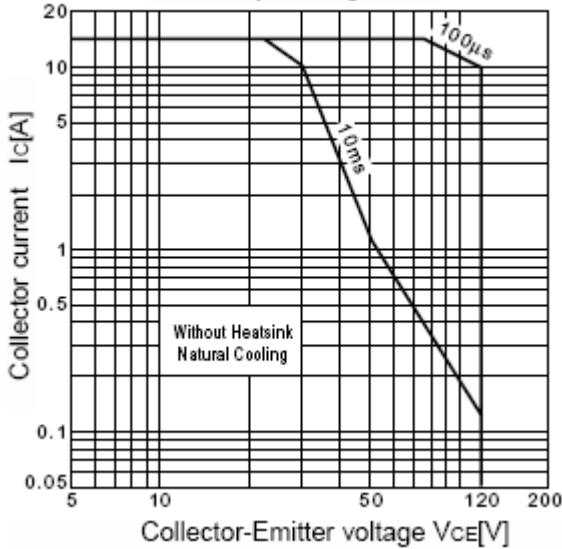
**$I_C$ - $V_{BE}$  Characteristics**



**Power Derating**



**Safe Operating Area**



**$h_{FE}$ - $I_C$  Characteristics**

