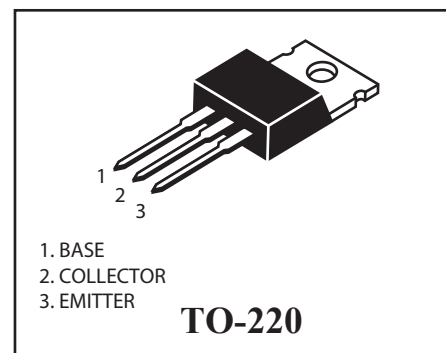
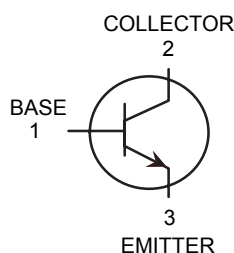


### NPN Silicon Epitaxial Power Transistor

**(Pb)** Lead(Pb)-Free

#### Features:

- \* DC Current Gain  $h_{FE} = 40-320$  @  $I_C = 1.0A$
- \* Low  $V_{CE(sat)} \leq 1.0V(MAX)$  @  $I_C = 2.0A, I_B = 0.2A$
- \* Complementary to NPN 2SB507



#### ABSOLUTE MAXIMUM RATINGS ( $T_A=25^\circ C$ )

Rating	Symbol	Value	Unit
Collector to Base Voltage	$V_{CBO}$	60	V
Collector to Emitter Voltage	$V_{CEO}$	60	V
Collector to Base Voltage	$V_{EBO}$	5.0	V
Collector Current	$I_C$	3.0	A
Total Device Dissipation $T_A=25^\circ C$ $T_C=25^\circ C$ Derate above $25^\circ C$	$P_D$	1.75 30 0.24	W W/ $^\circ C$
Junction Temperature	$T_J$	+150	$^\circ C$
Storage Temperature	$T_{stg}$	-55 to +150	$^\circ C$

#### ELECTRICAL CHARACTERISTICS

Characteristics	Symbol	Min	Max	Max	Unit
Collector-Base Breakdown Voltage $I_C=100\mu A, I_E=0$	$BV_{CBO}$	60	-	-	V
Collector-Emitter Breakdown Voltage $I_C=1mA, I_B=0$	$BV_{CEO}$	60	-	-	V
Emitter-Base Breakdown Voltage $I_E=100\mu A, I_C=0$	$BV_{EBO}$	5.0	-	-	V
Collector Cut-Off Current $V_{CB}=60V, I_E=0$	$I_{CBO}$	-	-	100	$\mu A$
Emitter-Cut-Off Current $V_{EB}=60V, I_E=0$	$I_{CEO}$	-	-	1.0	mA
Emitter-Cut-Off Current $V_{EB}=4.0V, I_C=0$	$I_{EBO}$	-	-	100	$\mu A$

ELECTRICAL CHARACTERISTICS ( $T_A=25^{\circ}\text{C}$  Unless otherwise noted)

Characteristic	Symbol	Min	Typ	Max	Unit
----------------	--------	-----	-----	-----	------

## ON CHARACTERISTICS

DC Current Gain $V_{CE}=2\text{V}, I_C=1\text{A}$ $V_{CE}=2\text{V}, I_C=0.1\text{A}$	$h_{FE1}$ $h_{FE2}$	40 40	- -	320 -	-
Collector-Emitter Saturation Voltage $I_C=2\text{A}, I_B=200\text{mA}$	$V_{CE(sat)}$	-	-	1.0	V
Base-Emitter On Voltage $V_{CE}=2\text{V}, I_C=1\text{A}$	$V_{BE}$	-	-	1.5	V
Transition Frequency $V_{CE}=5\text{V}, I_C=500\text{mA}$	$f_T$	-	8	-	MHz
Transition Frequency $V_{CB}=10\text{V}, I_E=0, f=1\text{MHz}$	$C_{ob}$	-	65	-	pF

CLASSIFICATION OF  $h_{FE(1)}$ 

Rank	C	D	E	F
Range	40-80	60-120	100-200	160-320

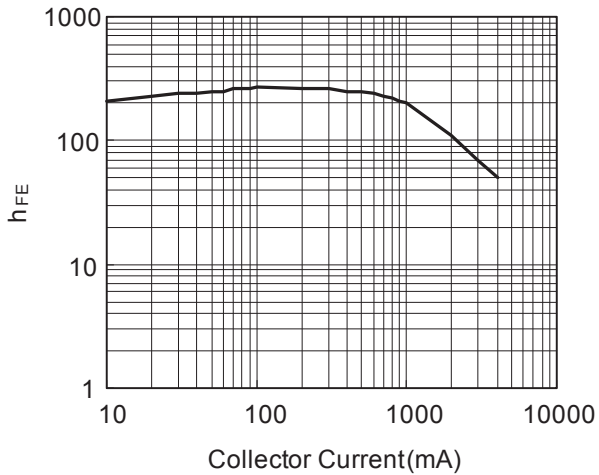


Fig.1 DC Current Gain

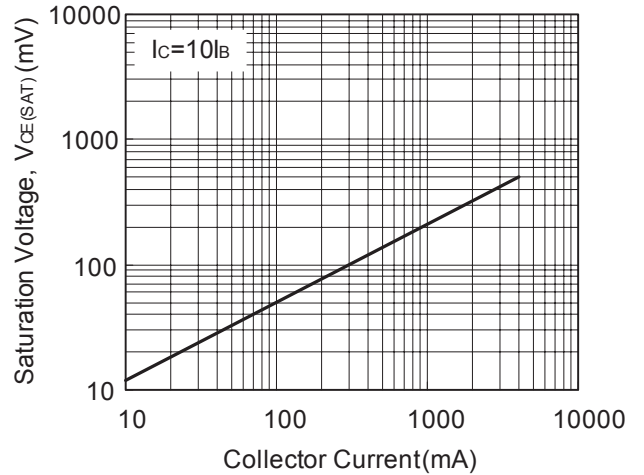


Fig.2 Saturation Voltage vs Collector Current

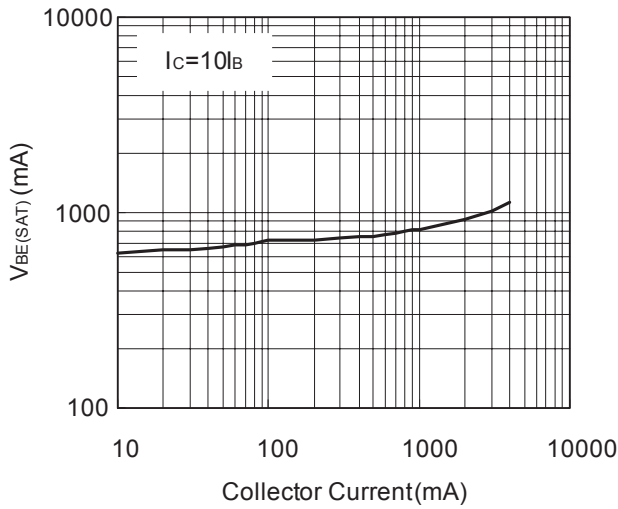


Fig.3  $V_{BE(sat)}$  vs  $I_C$

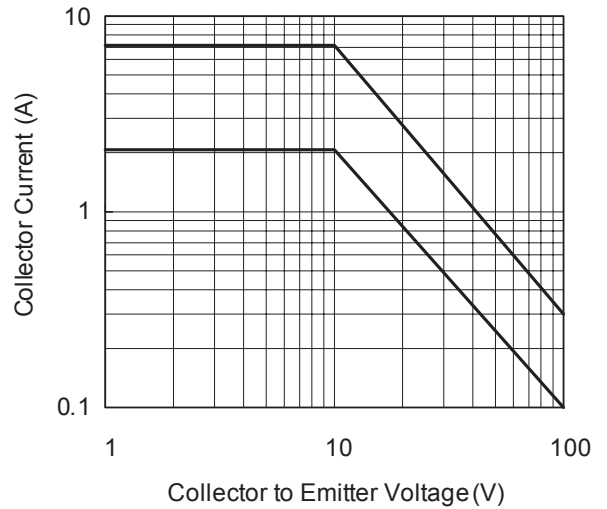


Fig.4 SOA

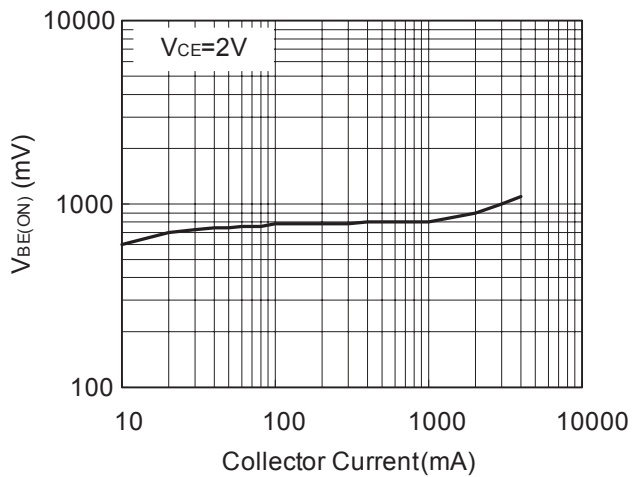
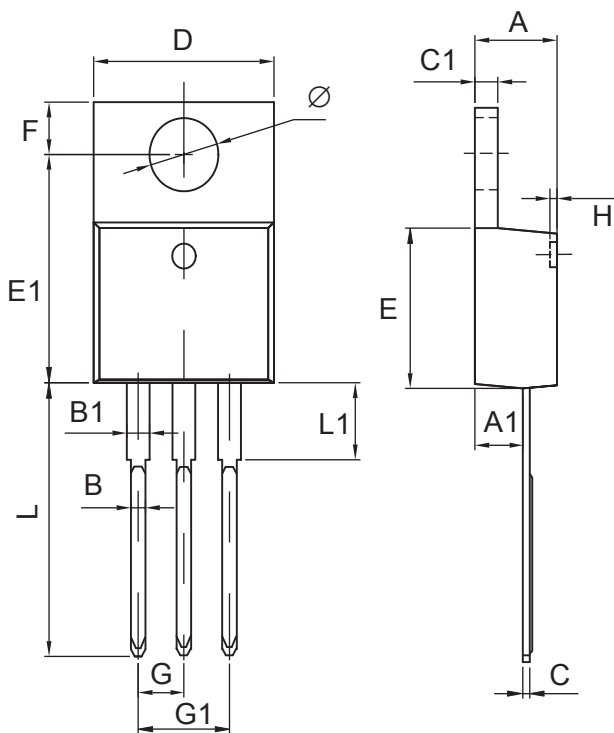


Fig.5  $V_{BE(on)}$  vs  $I_C$

**TO-220 Outline Dimensions**

unit:mm



<b>TO-220</b>		
<b>Dim</b>	<b>Min</b>	<b>Max</b>
<b>A</b>	4.47	4.67
<b>A1</b>	2.52	2.82
<b>B</b>	0.71	0.91
<b>B1</b>	1.17	1.37
<b>C</b>	0.31	0.53
<b>C1</b>	1.17	1.37
<b>D</b>	10.01	10.31
<b>E</b>	8.50	8.90
<b>E1</b>	12.06	12.446
<b>G</b>	2.54 TYP	
<b>G1</b>	4.98	5.18
<b>F</b>	2.59	2.89
<b>H</b>	0.00	0.30
<b>L</b>	13.4	13.8
<b>L1</b>	3.56	3.96
$\Phi$	3.73	3.93