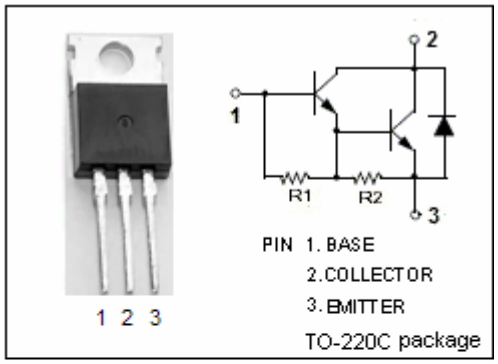
isc Silicon NPN Darlington Power Transistor TIP102

DESCRIPTION

- High DC Current Gain-
  : h_{FE} = 1000(Min)@ I_C= 3A
- Collector-Emitter Sustaining Voltage-
  : $V_{CEO(SUS)}$ = 100V(Min)
- Low Collector-Emitter Saturation Voltage-
  : $V_{CE(sat)}$ = 2.0V(Max)@ I_C= 3A
  = 2.5V(Max)@ I_C= 8A
- Complement to Type TIP107

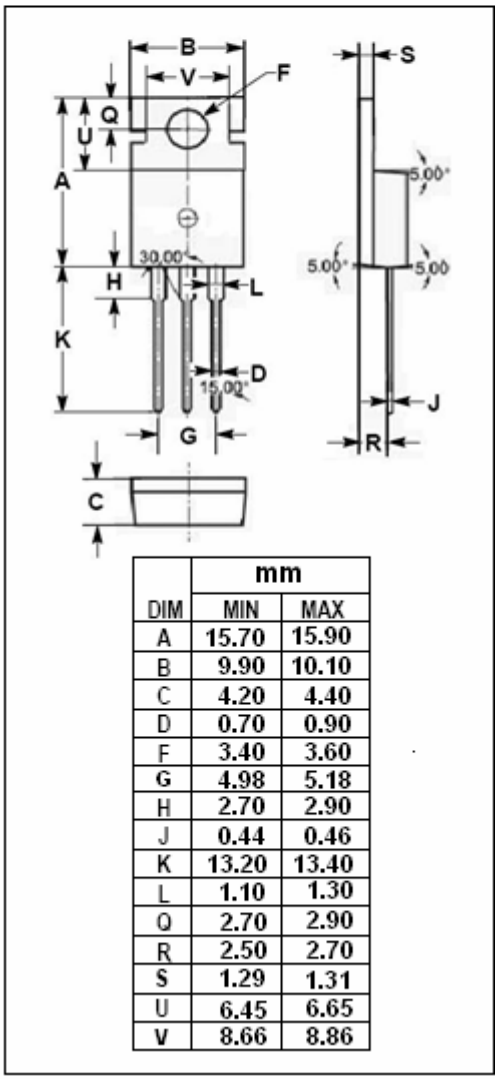


APPLICATIONS

- Designed for general-purpose amplifier and low-speed switching applications

ABSOLUTE MAXIMUM RATINGS(T_a=25℃)

SYMBOL	PARAMETER	VALUE	UNIT
V_{CBO}	Collector-Base Voltage	100	V
V_{CEO}	Collector-Emitter Voltage	100	V
V_{EBO}	Emitter-Base Voltage	5	V
I_C	Collector Current-Continuous	8	A
I_{CM}	Collector Current-Peak	15	A
I_B	Base Current- Continuous	1	A
P_C	Collector Power Dissipation @T_C=25℃	80	W
	Collector Power Dissipation @T_a=25℃	2	
T_j	Junction Temperature	150	℃
T_{stg}	Storage Temperature Range	-65~150	℃



DIM	mm MIN	MAX
A	15.70	15.90
B	9.90	10.10
C	4.20	4.40
D	0.70	0.90
F	3.40	3.60
G	4.98	5.18
H	2.70	2.90
J	0.44	0.46
K	13.20	13.40
L	1.10	1.30
Q	2.70	2.90
R	2.50	2.70
S	1.29	1.31
U	6.45	6.65
V	8.66	8.86

THERMAL CHARACTERISTICS

SYMBOL	PARAMETER	MAX	UNIT
$R_{th\ j\text{-}c}$	Thermal Resistance,Junction to Case	1.56	℃/W
$R_{th\ j\text{-}a}$	Thermal Resistance,Junction to Ambient	62.5	℃/W

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ELECTRICAL CHARACTERISTICS

T_C=25℃ unless otherwise specified

SYMBOL	PARAMETER	CONDITIONS	MIN	MAX	UNIT
$V_{CEO(SUS)}$	Collector-Emitter Sustaining Voltage	I_C= 30mA, I_B= 0	100		V
$V_{CE(sat)-1}$	Collector-Emitter Saturation Voltage	I_C= 3A ,I_B= 6mA		2.0	V
$V_{CE(sat)-2}$	Collector-Emitter Saturation Voltage	I_C= 8A ,I_B= 80mA		2.5	V
$V_{BE(on)}$	Base-Emitter On Voltage	I_C= 8A ; V_{CE}= 4V		2.8	V
I_{CBO}	Collector Cutoff Current	V_{CB}= 100V, I_E= 0		50	μA
I_{CEO}	Collector Cutoff Current	V_{CE}= 50V, I_B= 0		50	μA
I_{EBO}	Emitter Cutoff Current	V_{EB}= 5V; I_C= 0		2	mA
h_{FE-1}	DC Current Gain	I_C= 3A ; V_{CE}= 4V	1000	20000	
h_{FE-2}	DC Current Gain	I_C= 8A ; V_{CE}= 4V	200		
C_{OB}	Output Capacitance	I_E= 0 ; V_{CB}= 10V,f= 0.1MHz		200	pF

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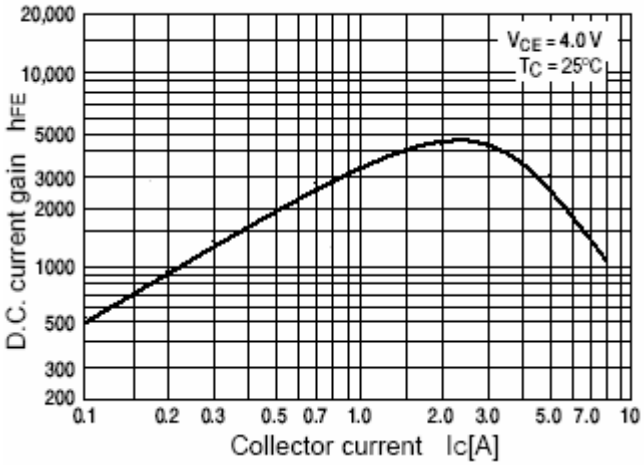
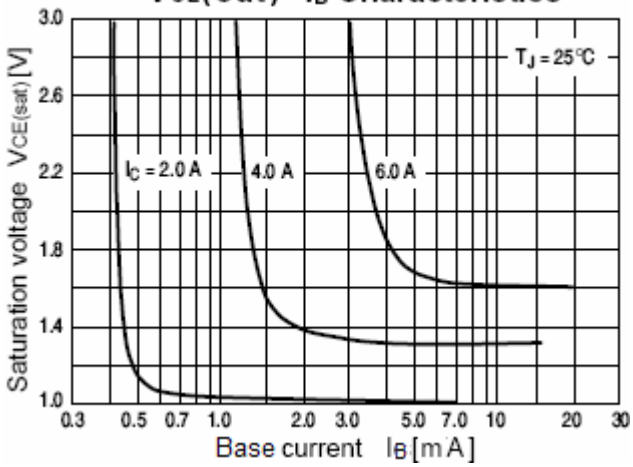
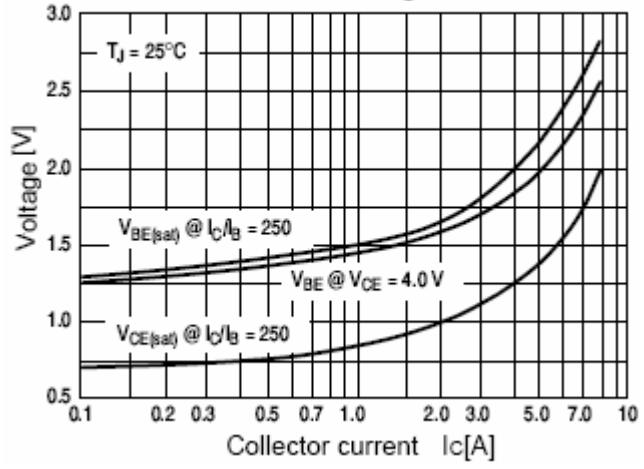
h_{FE}–I_C Characteristics



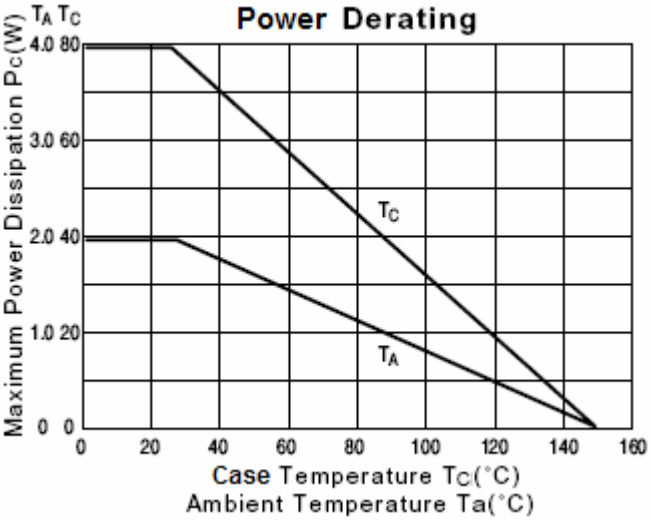
$V_{CE(sat)}$–I_B Characteristics



"On" Voltages



Power Derating



Safe Operating Area