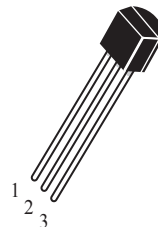


NPN General Purpose Transistors

 Lead(Pb)-Free

TO-92

1. EMITTER
2. BASE
3. COLLECTOR



ABSOLUTE MAXIMUM RATINGS ($T_A=25^{\circ}\text{C}$)

Rating	Symbol	Value	Unit
Collector-Emitter Voltage	V_{CE0}	25	Vdc
Collector-Base Voltage	V_{CB0}	40	Vdc
Emitter-Base Voltage	V_{EB0}	5.0	Vdc
Collector Current	I_C	500	mAdc
Total Device Dissipation $T_A=25^{\circ}\text{C}$	P_D	0.625	W
Junction Temperature	T_j	150	$^{\circ}\text{C}$
Storage, Temperature	T_{stg}	-55 to +150	$^{\circ}\text{C}$

ELECTRICAL CHARACTERISTICS

Characteristics	Symbol	Min	Max	Unit
Collector-Emitter Breakdown Voltage ($I_C=0.1\text{ mAdc}$, $I_B=0$)	$V_{(BR)CE0}$	25	-	Vdc
Collector-Base Breakdown Voltage ($I_C=100\text{ }\mu\text{Adc}$, $I_E=0$)	$V_{(BR)CB0}$	40	-	Vdc
Emitter-Base Breakdown Voltage ($I_E=100\text{ }\mu\text{Adc}$, $I_C=0$)	$V_{(BR)EB0}$	5.0	-	Vdc
Collector Cutoff Current ($V_{CE}=20\text{ Vdc}$, $I_B=0$)	I_{CE0}	-	0.1	μAdc
Collector Cutoff Current ($V_{CB}=40\text{ Vdc}$, $I_E=0$)	I_{CB0}	-	0.1	μAdc
Emitter Cutoff Current ($V_{EB}=3.0\text{ Vdc}$, $I_C=0$)	I_{EB0}	-	0.1	μAdc

S8050**ELECTRICAL CHARACTERISTICS** ($T_A=25^{\circ}\text{C}$ unless otherwise noted) (Continued)

Characteristics	Symbol	Min	TYP	Max	Unit
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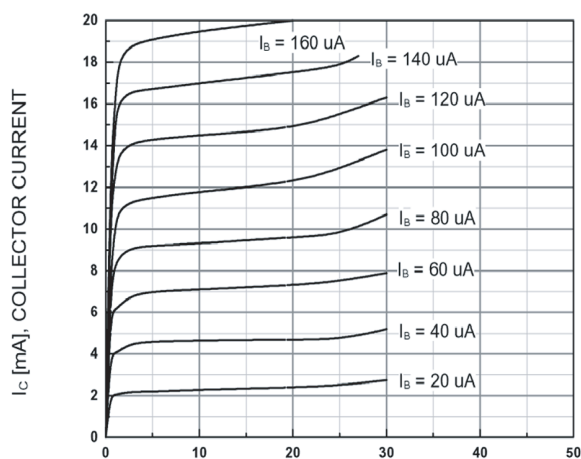
ON CHARACTERISTICS

DC Current Gain ($I_C=50\text{ A dc}, V_{CE}=1.0\text{ V dc}$)	$h_{FE}(1)$	85	-	300	-
DC Current Gain ($I_C=500\text{ m A dc}, V_{CE}=1.0\text{ V dc}$)	$h_{FE}(2)$	50	-	-	-
Collector-Emitter Saturation Voltage ($I_C=500\text{ A dc}, I_B=50\text{ m A dc}$)	$V_{CE(sat)}$	-	-	0.6	Vdc
Base-Emitter Saturation Voltage ($I_C=500\text{ m A dc}, I_B=50\text{ m A dc}$)	$V_{BE(sat)}$	-	-	1.2	Vdc
Current-Gain-Bandwidth Product ($I_C=20\text{ m A dc}, V_{CE}=6.0\text{ V dc}, f=30\text{ MHz}$)	f_T	150	-	-	MHz

Classification of $h_{FE}(1)$

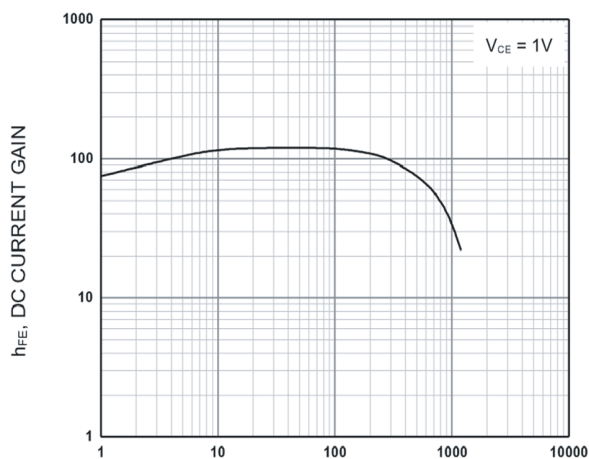
Rank	B	C	D
Range	85-160	120-200	160-300

Typical Characteristics



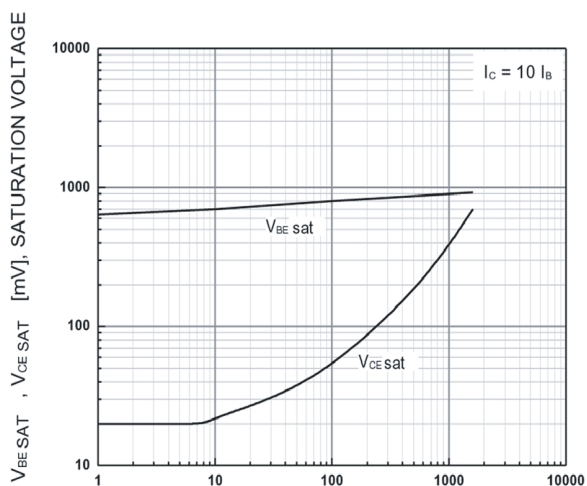
V_{CE} [V], COLLECTOR-EMITTER VOLTAGE

Static Characteristic



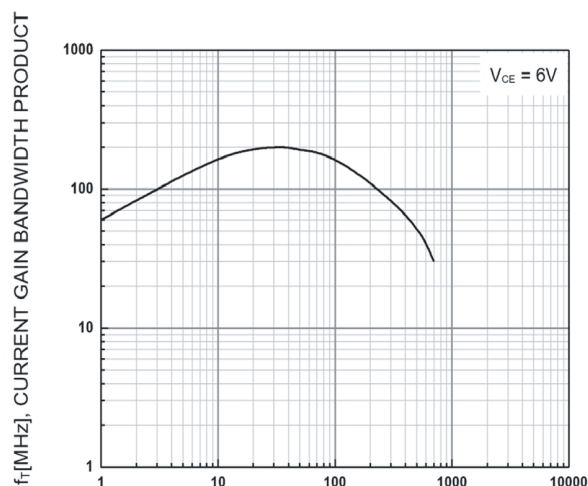
I_C [mA], COLLECTOR CURRENT

DC current Gain



I_C [mA], COLLECTOR CURRENT

Base-Emitter Saturation Voltage
Collector-Emitter Saturation Voltage

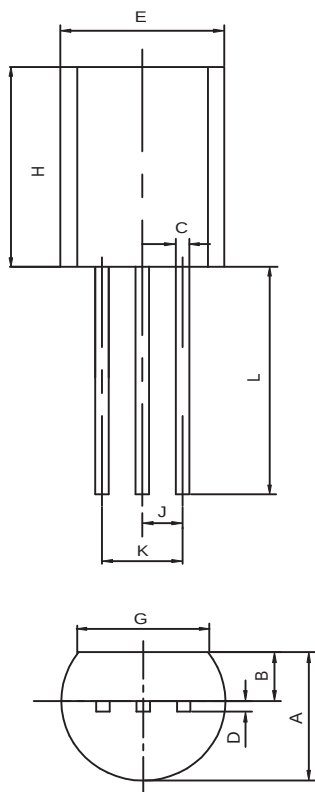


I_C [mA], COLLECTOR CURRENT

Current Gain Bandwidth Product

TO-92 Outline Dimensions

unit:mm



TO-92		
Dim	Min	Max
A	3.30	3.70
B	1.10	1.40
C	0.38	0.55
D	0.36	0.51
E	4.40	4.70
G	3.43	-
H	4.30	4.70
J	1.270TYP	
K	2.44	2.64
L	14.10	14.50