

RoHS Compliant Product  
A suffix of "-C" specifies halogen & lead-free

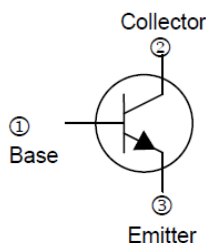
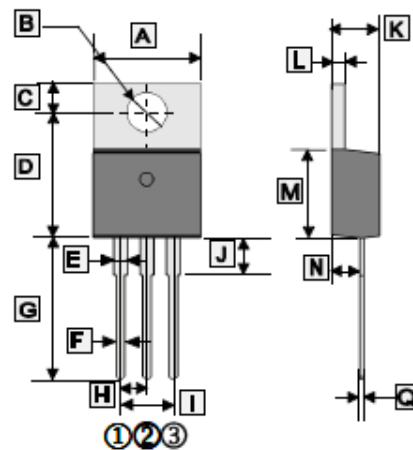
## FEATURES

- Low saturation voltage
- General purpose applications

## CLASSIFICATION OF $h_{FE}$

Product-Rank	Y
Range	100-200

TO-220J



REF.	Millimeter		REF.	Millimeter	
	Min.	Max.		Min.	Max.
A	9.57	10.57	I	4.68	5.48
B	3.54	4.14	J	2.95	3.96
C	2.54	2.94	K	4.27	4.87
D	11.86	13.26	L	1.07	1.47
E	0.97	1.57	M	8.0	10.0
F	0.51	1.11	N	2.03	2.92
G	12.7	13.8	Q	0.30	0.65
H	2.540 TYP.				

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

Parameter	Symbol	Rating	Unit
Collector to Base Voltage	$V_{CBO}$	60	V
Collector to Emitter Voltage	$V_{CEO}$	60	V
Emitter to Base Voltage	$V_{EBO}$	7	V
Collector Current	$I_C$	3	A
Collector Power Dissipation	$P_C$	2	W
Thermal Resistance from Junction to Ambient	$R_{\theta JA}$	63	$^\circ\text{C}/\text{W}$
Junction and Storage Temperature	$T_J, T_{STG}$	150, -55~150	$^\circ\text{C}$

## ELECTRICAL CHARACTERISTICS ( $T_A=25^\circ\text{C}$ unless otherwise specified)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Test Condition
Collector to Base Breakdown Voltage	$V_{(BR)CBO}$	60	-	-	V	$I_C=0.1\text{mA}, I_E=0$
Collector to Emitter Breakdown Voltage	$V_{(BR)CEO}$	60	-	-	V	$I_C=50\text{mA}, I_B=0$
Emitter to Base Breakdown Voltage	$V_{(BR)EBO}$	7	-	-	V	$I_E=0.1\text{mA}, I_C=0$
Collector Cut-Off Current	$I_{CBO}$	-	-	100	$\mu\text{A}$	$V_{CB}=60\text{V}, I_E=0$
Emitter Cut-Off Current	$I_{EBO}$	-	-	100	$\mu\text{A}$	$V_{EB}=7\text{V}, I_C=0$
DC Current Gain	$h_{FE}$	100	-	200		$V_{CE}=5\text{V}, I_C=0.5\text{A}$
Collector to Emitter Saturation Voltage	$V_{CE(sat)}$	-	-	1	V	$I_C=2\text{A}, I_B=0.2\text{A}$
Base to Emitter Voltage	$V_{BE(on)}$	-	-	1	V	$V_{CE}=5\text{V}, I_C=0.5\text{A}$
Transition Frequency	$f_T$	-	30	-	MHz	$V_{CE}=5\text{V}, I_C=0.5\text{A}$
Collector Output Capacitance	$C_{ob}$	-	35	-	pF	$V_{CB}=10\text{V}, I_E=0, f=1\text{MHz}$

**CHARACTERISTIC CURVES**

Static Characteristic

