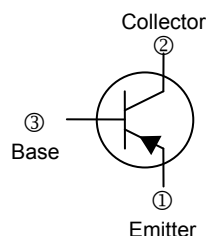
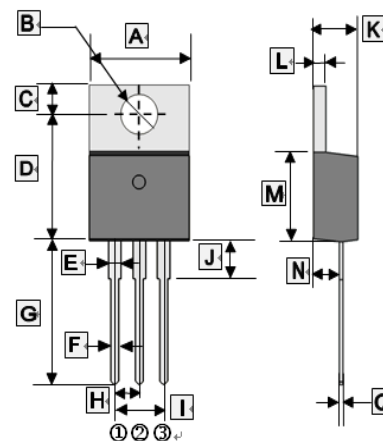


RoHS Compliant Product  
A suffix of "-C" specifies halogen & lead-free

## FEATURES

- General Purpose Switching and Amplification.
- Wide ASO (Adoption of MBIT Process)
- Low Saturation Voltage.

TO-220J



REF.	Millimeter		REF.	Millimeter	
	Min.	Max.		Min.	Max.
A	10.010	10.350	I	4.980	5.180
B	3.735	3.935	J	3.560	3.960
C	2.590	2.890	K	4.470	4.670
D	12.060	12.460	L	1.200	1.400
E	1.170	1.370	M	8.500	8.900
F	0.710	0.910	N	2.520	2.820
G	13.400	13.800	Q	0.330	0.650
H	2.540 TYP.				

## ABSOLUTE MAXIMUM RATINGS (T<sub>A</sub>=25°C unless otherwise specified)

Parameter	Symbol	Rating	Unit
Collector to Base Voltage	V <sub>CB0</sub>	-60	V
Collector to Emitter Voltage	V <sub>CE0</sub>	-60	V
Emitter to Base Voltage	V <sub>EBO</sub>	-6	V
Collector Current - Continuous	I <sub>C</sub>	-3	A
Collector Power Dissipation	P <sub>C</sub>	2	W
Junction, Storage Temperature	T <sub>J</sub> , T <sub>STG</sub>	150, -55~150	°C

## ELECTRICAL CHARACTERISTICS (T<sub>A</sub>=25°C unless otherwise specified)

Parameter	Symbol	Min	Typ	Max	Unit	Test condition
Collector to Base Breakdown Voltage	V <sub>(BR)CBO</sub>	-60	-	-	V	I <sub>C</sub> = -1mA, I <sub>E</sub> =0
Collector to Emitter Breakdown Voltage	V <sub>(BR)CEO</sub>	-60	-	-	V	I <sub>C</sub> = -5mA, I <sub>B</sub> =0
Emitter to Base Breakdown Voltage	V <sub>(BR)EBO</sub>	-6	-	-	V	I <sub>E</sub> = -1mA, I <sub>C</sub> =0
Collector Cut-Off Current	I <sub>CBO</sub>	-	-	-0.1	μA	V <sub>CB</sub> = -40V, I <sub>E</sub> =0
Emitter Cut-Off Current	I <sub>EBO</sub>	-	-	-0.1	μA	V <sub>EB</sub> = -4V, I <sub>C</sub> =0
DC Current Gain	h <sub>FE</sub>	100	-	200		V <sub>CE</sub> = -5V, I <sub>C</sub> = -500mA
		20	-	-		V <sub>CE</sub> = -5V, I <sub>C</sub> = -3A
Collector to Emitter Saturation Voltage	V <sub>CE(sat)</sub>	-	-	-1	V	I <sub>C</sub> = -2A, I <sub>B</sub> = -200mA
Base to Emitter Saturation Voltage	V <sub>BE(sat)</sub>	-	-	-1	V	V <sub>CE</sub> = -5V, I <sub>C</sub> = -500mA
Transition Frequency	f <sub>T</sub>	-	100	-	MHz	V <sub>CE</sub> = -5V, I <sub>C</sub> = -500mA
Collector output capacitance	C <sub>ob</sub>	-	60	-	pF	V <sub>CB</sub> = -10V, I <sub>E</sub> =0, f=1MHz