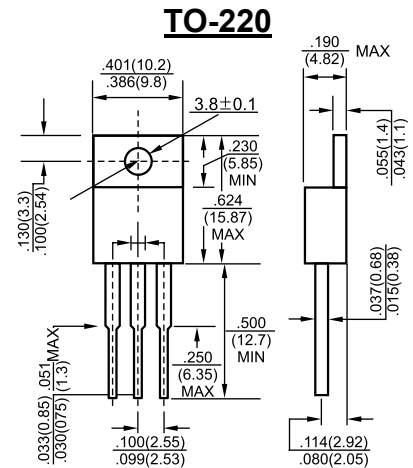


1. BASE
2. COLLECTOR
3. EMITTER

Features

- ◇ Low Collector-Emitter Saturation Voltage
- ◇ $V_{ce(sat)} = -1V(\text{MAX}) @ I_C = -2A, I_B = -0.2A$
DC Current Gain $h_{FE} = 40 \sim 320 @ I_C = -1A$
- ◇ Complementary to NPN 2SD313



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

Dimensions in inches and (millimeters)

Symbol	Parameter	Value	Units
V_{CBO}	Collector-Base Voltage	-60	V
V_{CEO}	Collector-Emitter Voltage	-60	V
V_{EBO}	Emitter-Base Voltage	-5	V
I_C	Collector Current -Continuous	-3	A
P_C	Collector Power Dissipation	1.75	W
T_J	Junction Temperature	150	$^\circ\text{C}$
T_{stg}	Storage Temperature	-55-150	$^\circ\text{C}$

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

Parameter	Symbol	Test conditions	MIN	TYP	MAX	UNIT
Collector-base breakdown voltage	$V_{(BR)CBO}$	$I_C = -100\mu\text{A}, I_E = 0$	-60			V
Collector-emitter breakdown voltage	$V_{(BR)CEO}$	$I_C = -10\text{mA}, I_B = 0$	-60			V
Emitter-base breakdown voltage	$V_{(BR)EBO}$	$I_E = -100\mu\text{A}, I_C = 0$	-5			V
Collector cut-off current	I_{CBO}	$V_{CB} = -20\text{V}, I_E = 0$			-100	μA
Collector cut-off current	I_{CEO}	$V_{CE} = -60\text{V}, I_E = 0$			-5	mA
Emitter cut-off current	I_{EBO}	$V_{EB} = -4\text{V}, I_C = 0$			-1	mA
DC current gain ⁽¹⁾	$h_{FE(1)}$	$V_{CE} = -2\text{V}, I_C = -1\text{A}$	40		320	
	$h_{FE(2)}$	$V_{CE} = -2\text{V}, I_C = -0.1\text{A}$	40			
Collector-emitter saturation voltage ⁽¹⁾	$V_{CE(sat)}$	$I_C = -2\text{A}, I_B = -200\text{mA}$			-1	V
Base-emitter voltage ⁽¹⁾	V_{BE}	$V_{CE} = -2\text{V}, I_C = -1\text{A}$			-1.5	V
Transition frequency	f_T	$V_{CE} = -5\text{V}, I_C = -500\text{mA}, f = 1\text{MHz}$	5			MHz

⁽¹⁾Pulse Test: Pulse Width=300 μs , Duty Cycle $\leq 2.0\%$

CLASSIFICATION OF $h_{FE(1)}$

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



Typical Characteristics

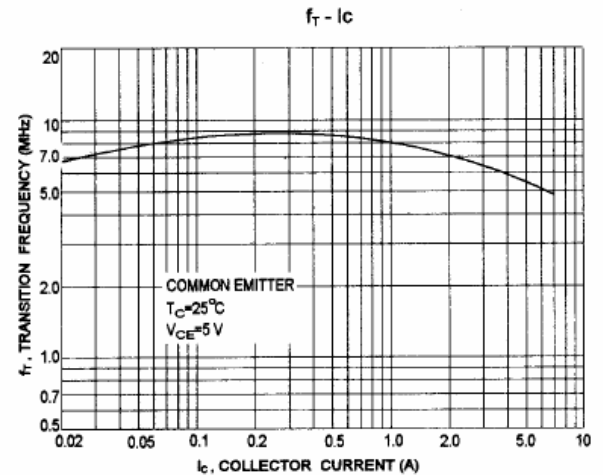
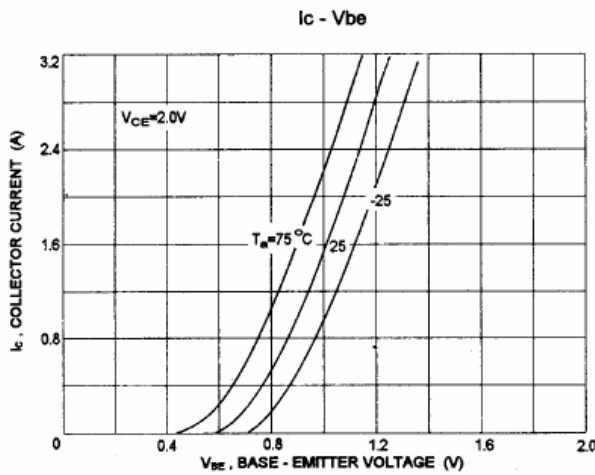
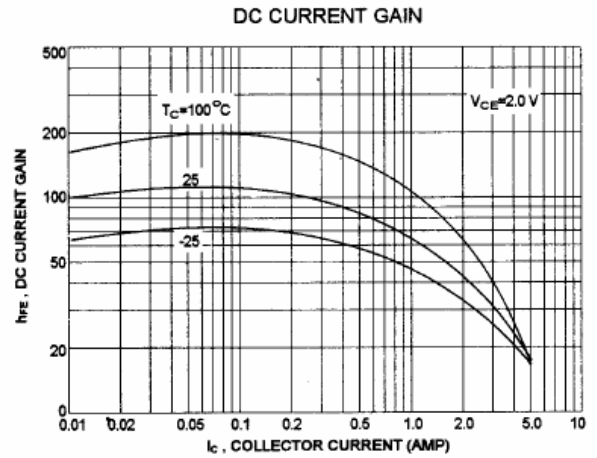
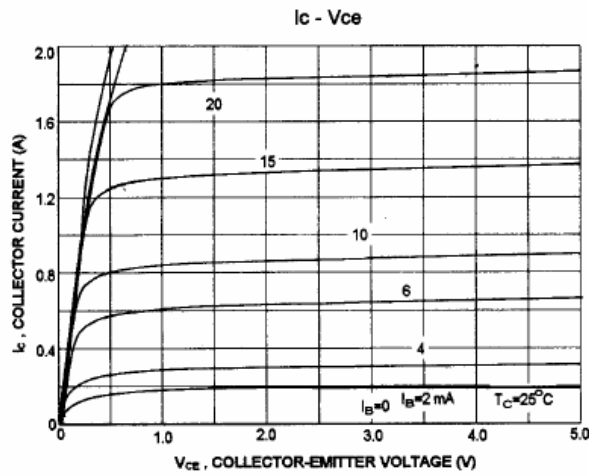
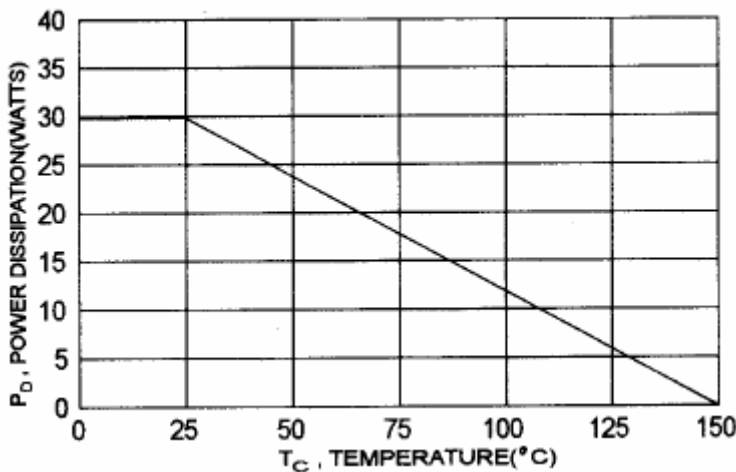


FIGURE -1 POWER DERATING



Package	Packing	Box Size LxWxH(mm)	Quatity(pcs/box)	Carton Size LxWxH(mm)	Quatity(pcs/carton)
TO-220	50pcs/Tube	558x148x38	1000	565x225x175	5000