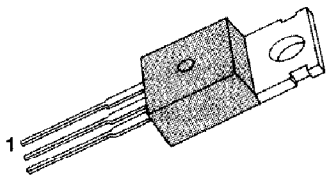
HIGH VOLTAGE AND SWITCHING APPLICATIONS
HIGH SUSTAINING VOLTAGE
(V_{CEO}(sus): 250 to 400V)
1A RATED COLLECTOR CURRENT

TO-220



1.Base 2.Collector 3.Emitter

ABSOLUTE MAXIMUM RATINGS

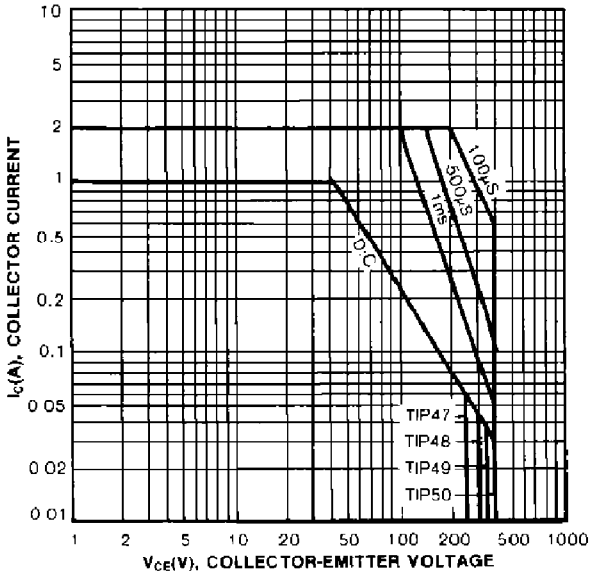
Characteristic	Symbol	Rating	Unit
Collector Emitter Voltage :TIP47	V_{CBO}	350	V
:TIP48		400	V
:TIP49		450	V
:TIP50		500	V
Collector Emitter Voltage : TIP47	V_{CEO}	250	V
:TIP48		300	V
:TIP49		350	V
:TIP50		400	V
Emitter-Base Voltage	V_{EBO}	5	V
Collector Current (DC)	I_C	1	A
Collector Current (Pulse)	I_C	2	A
Base Current	I_B	0.6	A
Collector Dissipation (T_C=25℃)	P_C	40	W
Collector Dissipation (T_A=25℃)	P_C	2	W
Junction Temperature	T_J	150	℃
Storage Temperature	T_{STG}	-65 ~ 150	℃

ELECTRICAL CHARACTERISTICS (T_C =25℃)

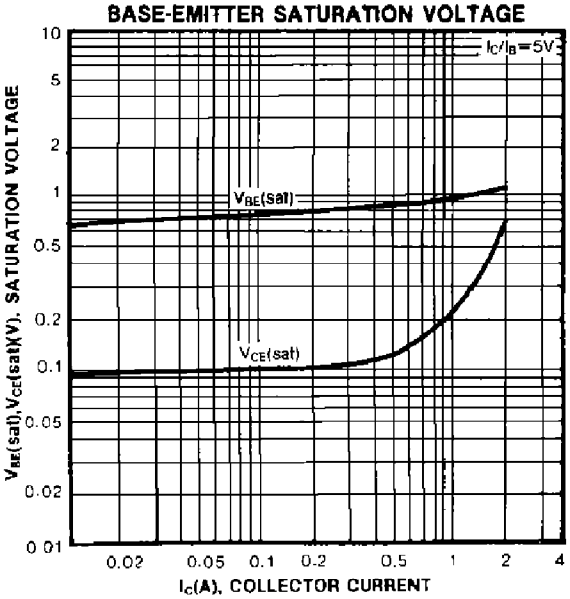
Characteristic	Symbol	Test Conditions	Min	Max	Unit
Collector Emitter Sustaining Voltage	V_{CEX}(sus)				
: TIP47		I_C = 30mA, I_B = 0	250		V
: TIP48			300		V
: TIP49			350		V
: TIP50			400		V
Collector Cutoff Current : TIP47	I_{CEO}	V_{CE} = 150V, I_B = 0		1	mA
: TIP48		V_{CE} = 200V, I_B = 0		1	mA
: TIP49		V_{CE} = 250V, I_B = 0		1	mA
: TIP50		V_{CE} = 300V, I_B = 0		1	mA
Collector Cutoff Current : TIP47	I_{CEX}	V_{CE} = 350V, V_{BE} = 0		1	mA
: TIP48		V_{CE} = 400V, V_{BE} = 0		1	mA
: TIP49		V_{CE} = 450V, V_{BE} = 0		1	mA
: TIP50		V_{CE} = 500V, V_{BE} = 0		1	mA
Emitter Cutoff Current	I_{EBO}	V_{EB} = 5V, I_C = 0		1	mA
*DC Current Gain	h_{FE}	V_{CE} = 10V, I_C = 0.3A	30	150	
		V_{CE} = 10V, I_C = 1A	10		
*Collector Emitter Saturation Voltage	V_{CE}(sat)	I_C = 1A, I_B = 0.2A		1	V
*Base Emitter Saturation Voltage	V_{BE}(on)	V_{CE} = 10V, I_C = 1A		1.5	V
Current Gain Bandwidth Product	f_T	V_{CE} =10V, I_C = 0.2A, f = 1KHz	10		MHz
Turn On Time	t_{ON}	V_{CC} = 400V		0.5	uS
Storage Time	t_{STG}	$5I_{B1}$ = -2.5I_{B2} = I_C = 6A		3	uS
Fall Time	t_F	RL = 66.7Ω		0.3	uS

* Pulse Test : PW ≤ 300μs, duty Cycle ≤ 2% Pulse

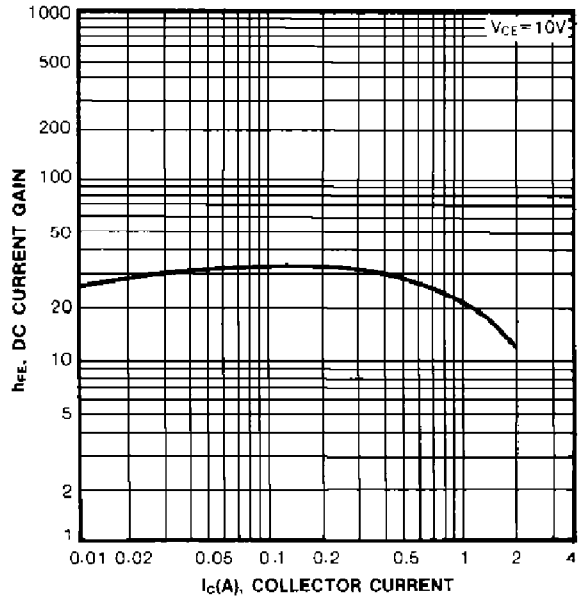
SAFE OPERATING AREA



COLLECTOR-EMITTER SATURATION VOLTAGE
BASE-EMITTER SATURATION VOLTAGE



DC CURRENT GAIN



POWER DERATING