TIP32/32A/32B/32C TRANSISTOR (PNP)

TO-220C

1.BASE
2.COLLECTOR
3.EMITTER

FEATURES

Medium Power Linear Switching Applications

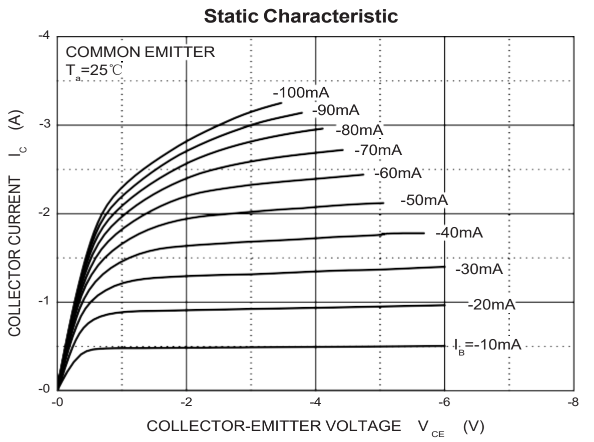
MAXIMUM RATINGS (T$_a$=25℃ unless otherwise noted)

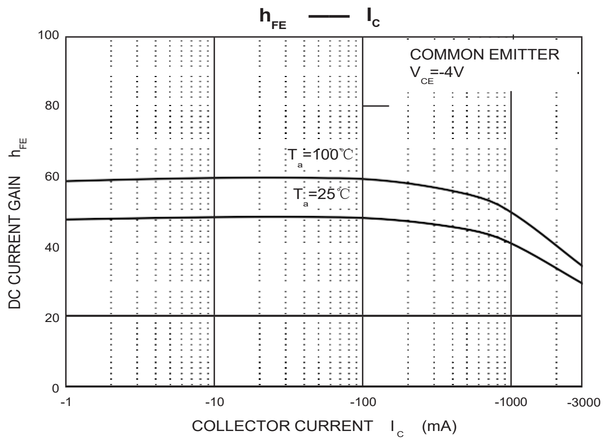
Symbol	Parameter	TIP32	TIP32A	TIP32B	TIP32C	Unit
V_{CBO}	Collector-Base Voltage	-40	-60	-80	-100	V
V_{CEO}	Collector-Emitter Voltage	-40	-60	-80	-100	V
V_{EBO}	Emitter-Base Voltage	-5				V
I_C	Collector Current	-3				A
P_C	Collector Power Dissipation	2				W
$R_{\theta JA}$	Thermal Resistance from Junction to Ambient	62.5				℃/W
T_j,T_{stg}	Operation Junction and Storage Temperature Range	-55~+150				℃

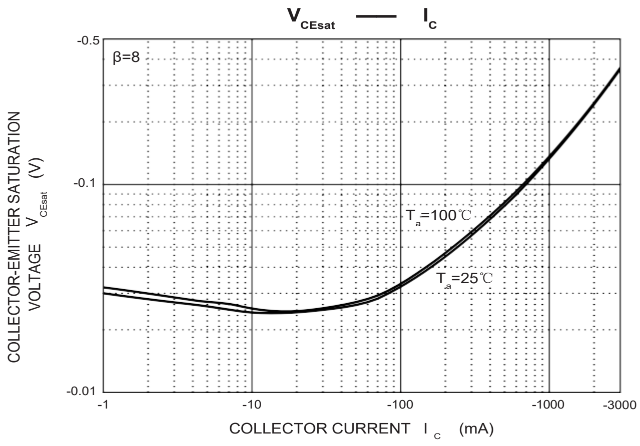
ELECTRICAL CHARACTERISTICS (T$_a$=25℃ unless otherwise specified)

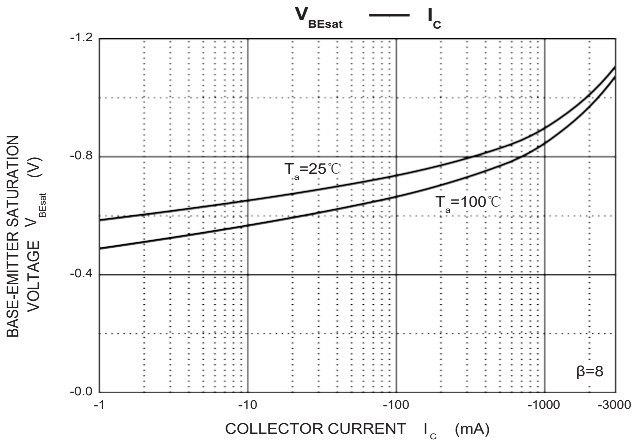
Parameter		Symbol	Test conditions	Min	Max	Unit
Collector-base breakdown voltage	**TIP32**	$V_{(BR)CBO}$	I_C= -1mA, I_E=0	-40		V
	TIP32A			-60		
	TIP32B			-80		
	TIP32C			-100		
Collector-emitter breakdown voltage *	**TIP32**	$V_{CEO(sus)}$	I_C= -30mA, I_B=0	-40		V
	TIP32A			-60		
	TIP32B			-80		
	TIP32C			-100		
Emitter-base breakdown voltage		$V_{(BR)EBO}$	I_E= -1mA, I_C=0	-5		V
Collector cut-off current	**TIP32**	I_{CBO}	V_{CB}=-40V,I_E=0		-200	μA
	TIP32A		V_{CB}=-60V, I_E=0			
	TIP32B		V_{CB}=-80V, I_E=0			
	TIP32C		V_{CB}=-100V, I_E=0			
Collector cut-off current	**TIP32/32A**	I_{CEO}	V_{CE}= -30V, I_B= 0		-0.3	mA
	TIP32B/32C		V_{CE}= -60V, I_B= 0			
Emitter cut-off current		I_{EBO}	V_{EB}=-5V, I_C=0		-1	mA
DC current gain		$h_{FE(1)}$	V_{CE}= -4V, I_C=-1A	25		
		$h_{FE(2)}$	V_{CE}=-4 V, I_C=-3A	15	75	
Collector-emitter saturation voltage		$V_{CE(sat)}$	I_C=-3A, I_B=-0.375A		-1.2	V
Base-emitter voltage		$V_{BE(on)}$	V_{CE}=-4V, I_C=-3A		-1.8	V
Transition frequency		f_T	V_{CE}=-10V , I_C=-0.5A	3		MHz

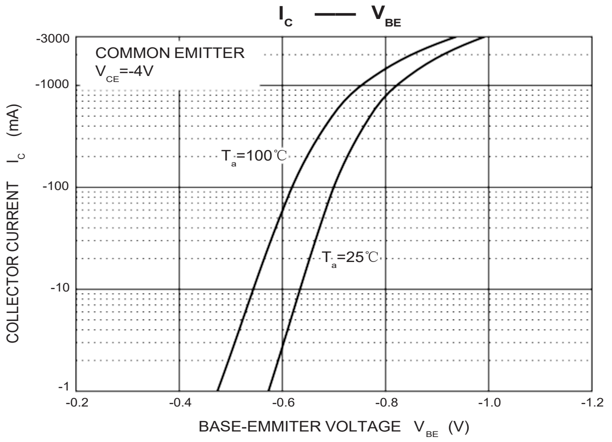
* Pulse Test: PW≤300μs, Duty Cycle≤2%.

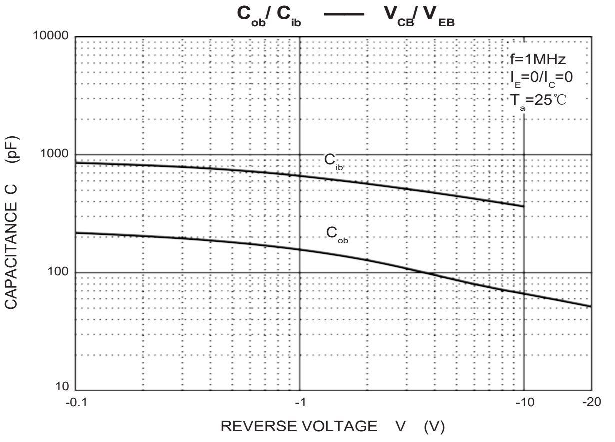

Static Characteristic
COMMON EMITTER
T_a=25℃
-100mA
-90mA
-80mA
-70mA
-60mA
-50mA
-40mA
-30mA
-20mA
I_B=-10mA
COLLECTOR CURRENT I_C (A)
-4
-3
-2
-1
-0
-0
-2
-4
-6
-8
COLLECTOR-EMITTER VOLTAGE V_{CE} (V)

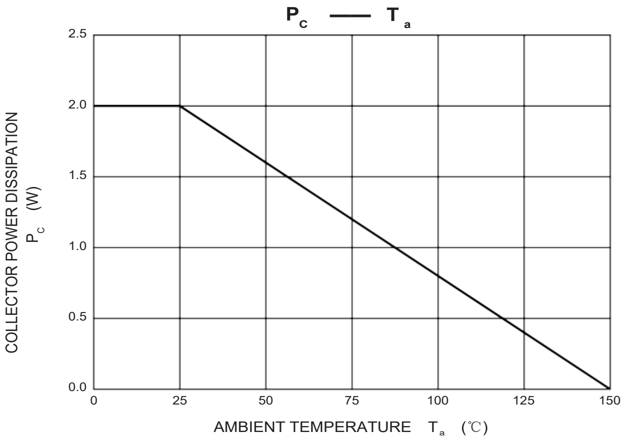

h_{FE} — I_C
COMMON EMITTER
V_{CE}=-4V
T_a=100℃
T_a=25℃
DC CURRENT GAIN h_{FE}
100
80
60
40
20
0
-1
-10
-100
-1000
-3000
COLLECTOR CURRENT I_C (mA)


V_{CEsat} — I_C
β=8
T_a=100℃
T_a=25℃
COLLECTOR-EMITTER SATURATION VOLTAGE V_{CEsat} (V)
-0.5
-0.1
-0.01
-1
-10
-100
-1000
-3000
COLLECTOR CURRENT I_C (mA)


V_{BEsat} — I_C
T_a=25℃
T_a=100℃
β=8
BASE-EMITTER SATURATION VOLTAGE V_{BEsat} (V)
-1.2
-0.8
-0.4
-0.0
-1
-10
-100
-1000
-3000
COLLECTOR CURRENT I_C (mA)


I_C — V_{BE}
COMMON EMITTER
V_{CE}=-4V
T_a=100℃
T_a=25℃
COLLECTOR CURRENT I_C (mA)
-3000
-1000
-100
-10
-1
-0.2
-0.4
-0.6
-0.8
-1.0
-1.2
BASE-EMMITER VOLTAGE V_{BE} (V)


C_{ob}/ C_{ib} — V_{CB}/ V_{EB}
f=1MHz
I_E=0/I_C=0
T_a=25℃
C_{ib}
C_{ob}
CAPACITANCE C (pF)
10000
1000
100
10
-0.1
-1
-10
-20
REVERSE VOLTAGE V (V)


P_C — T_a
COLLECTOR POWER DISSIPATION P_C (W)
2.5
2.0
1.5
1.0
0.5
0.0
0
25
50
75
100
125
150
AMBIENT TEMPERATURE T_a (℃)