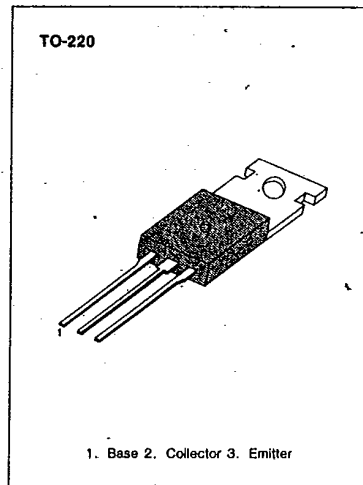


TIP42 SERIES**(TIP42/42A/42B/42C) PNP EXITAXIAL SILICON TRANSISTOR****MEDIUM POWER LINEAR
SWITCHING APPLICATIONS**

- Complement to TIP41/41A/41B/41C

ABSOLUTE MAXIMUM RATINGS (T_a=25°C)

Characteristic	Symbol	Rating	Unit
Collector-Base Voltage : TIP42	V _{CB0}	-40	V
: TIP42A		-60	V
: TIP42B		-80	V
: TIP42C		-100	V
Collector-Emitter Voltage : TIP42	V _{CE0}	-40	V
: TIP42A		-60	V
: TIP42B		-80	V
: TIP42C		-100	V
Emitter-Base Voltage	V _{EB0}	-5	V
Collector Current (DC)	I _C	-6	A
Collector Current (Pulse)	I _C	-10	A
Base Current	I _B	-2	A
Collector Dissipation (T _c =25°C)	P _C	65	W
Collector Dissipation (T _a =25°C)	P _C	2	W
Junction Temperature	T _J	150	°C
Storage Temperature	T _{stg}	-65~150	°C

**3****ELECTRICAL CHARACTERISTICS (T_c=25°C)**

Characteristic	Symbol	Test Condition	Min	Max	Unit
* Collector Emitter Sustaining Voltage : TIP42	BV _{CEO(sus)}	I _C = -30mA, I _B = 0	-40		V
: TIP42A			-60		V
: TIP42B			-80		V
: TIP42C			-100		V
Collector Cutoff Current : TIP42/42A	I _{CEO}	V _{CE} = -30V, I _B = 0		-0.7	mA
: TIP42B/42C		V _{CE} = -60V, I _B = 0		-0.7	mA
Collector Cutoff Current : TIP42	I _{CES}	V _{CE} = -40V, V _{EB} = 0		-400	μA
: TIP42A		V _{CE} = -60V, V _{EB} = 0		-400	μA
: TIP42B		V _{CE} = -80V, V _{EB} = 0		-400	μA
: TIP42C		V _{CE} = -100V, V _{EB} = 0		-400	μA
Emitter Cutoff Current	I _{EBO}	V _{BE} = -5V, I _C = 0		-1	mA
* DC Current Gain	h _{FE}	V _{CE} = -4V, I _C = -0.3A	30		
		V _{CE} = -4V, I _C = -3A	15	75	
* Collector-Emitter Saturation Voltage	V _{CE(sat)}	I _C = -6A, I _B = -600mA		-1.5	V
* Base-Emitter On Voltage	V _{BE(on)}	V _{CE} = -4V, I _C = -6A		-2.0	V
Current Gain Bandwidth Product	f _T	V _{CE} = -10V, I _C = -500mA	3.0		MHz
		f = 1MHz			

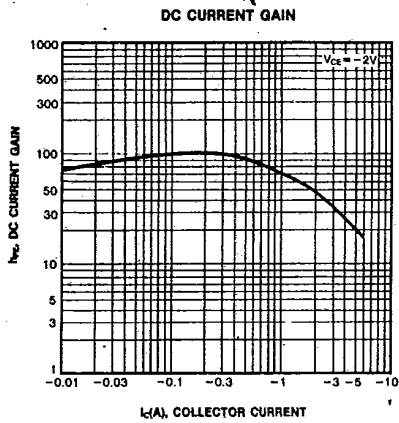
- * Pulse Test: PW ≤ 300μs, Duty Cycle ≤ 2%



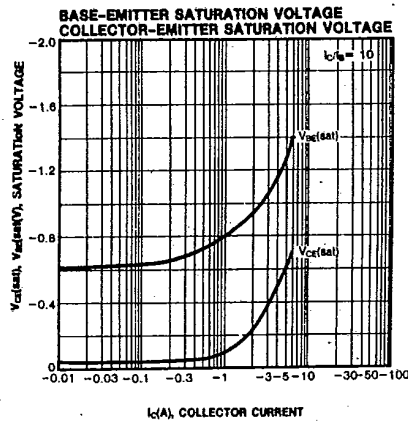
TIP42 SERIES

(TIP42/42A/42B/42C) PNP EXITAXIAL SILICON TRANSISTOR

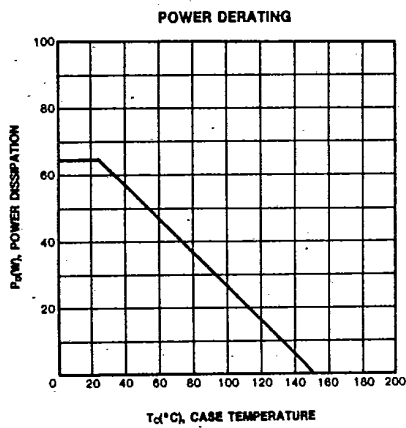
T-33-21



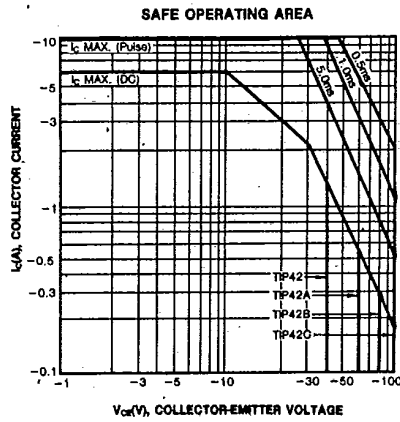
I_C (A), COLLECTOR CURRENT



I_C (A), COLLECTOR CURRENT



T_c (°C), CASE TEMPERATURE



V_{CE} (V), COLLECTOR-EMITTER VOLTAGE

TIP47/48/49/50

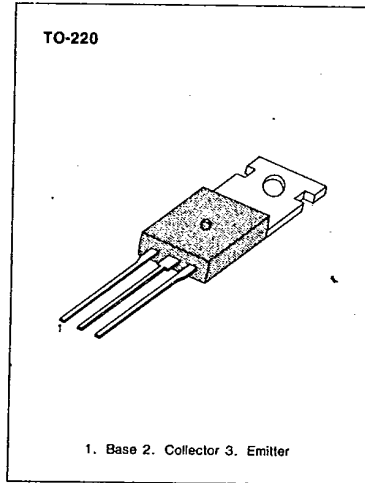
NPN SILICON TRANSISTOR

T-33-11

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

ABSOLUTE MAXIMUM RATINGS (T_a=25°C)

Characteristic	Symbol	Rating	Unit
Collector-Base Voltage : TIP47	V _{CB0}	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 _{EB0}	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°C)	P _c	40	W
Collector Dissipation (T _a =25°C)	P _c	2	W
Junction Temperature	T _J	150	°C
Storage Temperature	T _{stg}	-65~150	°C



3

ELECTRICAL CHARACTERISTICS (T_a=25°C)

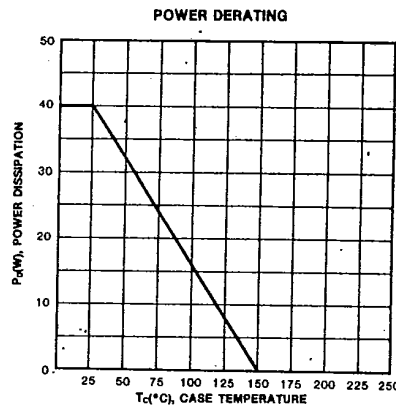
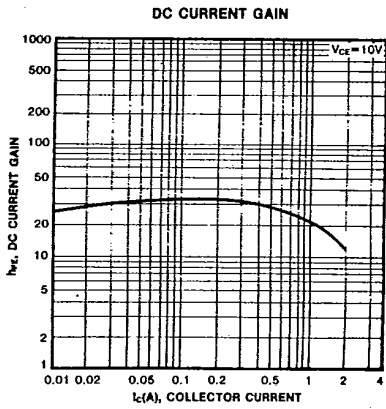
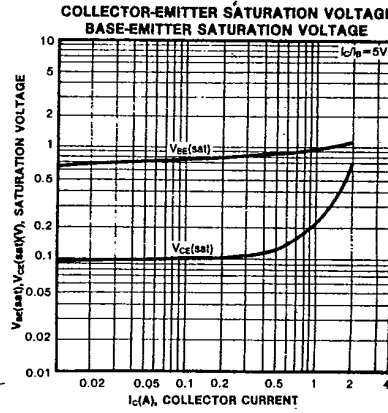
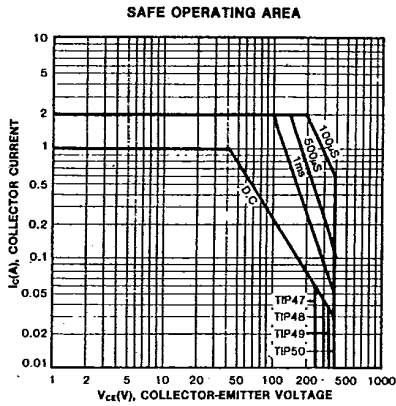
Characteristic	Symbol	Test Condition	Min	Max	Unit
Collector Emitter Sustaining Voltage : TIP47	V _{CEX(SUS)}	I _c =30mA, I _b =0	250		V
: TIP48			300		V
: TIP49			350		V
: TIP50			400		V
Collector Cutoff Current : TIP47	I _{CEO}	V _{CE} =150V, I _b =0		1	mA
: TIP48		V _{CE} =200V, I _b =0		1	mA
: TIP49		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 _{EB0}	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 On 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	μs
Storage Time	t _s	5I _{b1} =-2.5I _{b2} =I _c =6A		3	μs
Fall Time	t _f	RL=66.7Ω		0.3	μs

* Pulse test: PW≤300μs, duty cycle ≤ 2% Pulse

TIP47/48/49/50

NPN SILICON TRANSISTOR

T-33-11



NPN EPITAXIAL SILICON DARLINGTON TRANSISTOR

TIP100/101/102

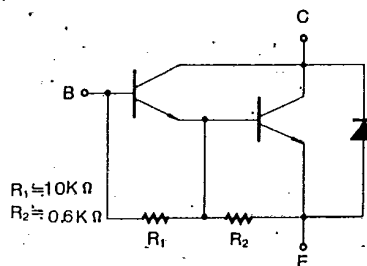
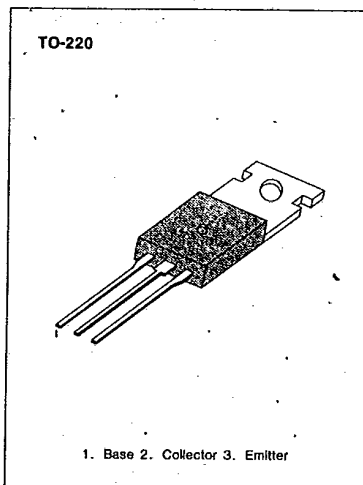
T-33-29

HIGH DC CURRENT GAIN
MIN $h_{FE}=1000$ @ $V_{CE}=4V, I_C=3A$
COLLECTOR-EMITTER SUSTAINING VOLTAGE
LOW COLLECTOR-EMITTER SATURATION VOLTAGE
MONOLITHIC CONSTRUCTION WITH BUILT IN BASE-EMITTER SHUNT RESISTORS
INDUSTRIAL USE

Complementary to TIP105/106/107

ABSOLUTE MAXIMUM RATINGS ($T_a=25^\circ C$)

Characteristic	Symbol	Rating	Unit
Collector-Base Voltage : TIP100	V_{CBO}	60	V
: TIP101		80	V
: TIP102		100	V
Collector-Emitter Voltage	V_{CEO}		
: TIP100		60	V
: TIP101		80	V
: TIP102		100	V
Emitter-Base Voltage	V_{EBO}	5	V
Collector Current (DC)	I_C	8	A
Collector Current (Pulse)	I_C	15	A
Base Current (DC)	I_B	1	A
Collector Dissipation ($T_a=25^\circ C$)	P_C	2	W
Collector Dissipation ($T_c=25^\circ C$)	P_C	80	W
Junction Temperature	T_J	150	$^\circ C$
Storage Temperature	T_{stg}	-65~150	$^\circ C$



ELECTRICAL CHARACTERISTICS ($T_a=25^\circ C$)

Characteristic	Symbol	Test Condition	Min	Max	Unit
Collector Emitter Sustaining Voltage	$V_{CEO(sus)}$	$I_C=30mA, I_B=0$	60		V
: TIP100			80		V
: TIP101			100		V
Collector Cutoff Current : TIP100	I_{CEO}	$V_{CE}=30V, I_B=0$		50	μA
: TIP101		$V_{CE}=40V, I_B=0$		50	μA
: TIP102		$V_{CE}=50V, I_B=0$		50	μA
Collector Cutoff Current : TIP100	I_{CBO}	$V_{CB}=60V, I_E=0$		50	μA
: TIP101		$V_{CB}=80V, I_E=0$		50	μA
: TIP102		$V_{CB}=100V, I_E=0$		50	μA
Emitter Cutoff Current	I_{EBO}	$V_{BE}=5V, I_C=0$		2	mA
DC Current Gain	h_{FE}	$V_{CE}=4V, I_C=3A$	1000	20000	
		$V_{CE}=4V, I_C=8A$	200		
Collector Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C=3A, I_B=6mA$		2	V
		$I_C=8A, I_B=80mA$		2.5	V
Base Emitter On Voltage	$V_{BE(on)}$	$V_{CE}=4V, I_C=8A$		2.8	V
Output Capacitance	C_{ob}	$V_{CB}=10V, I_E=0, f=0.1MHz$		200	pF