

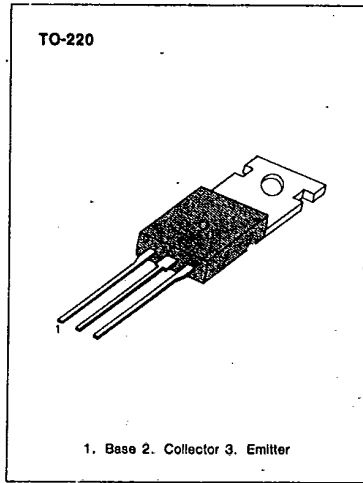
TIP105/106/107

PNP EPITAXIAL SILICON DARLINGTON TRANSISTOR

T-33-31

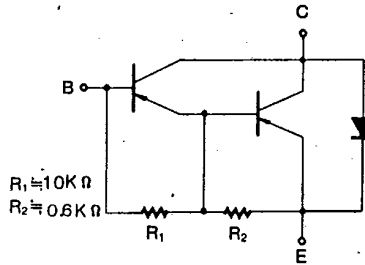
HIGH DC CURRENT GAIN
 MIN $h_{FE} = 1000$ @ $V_{CE} = -4V, I_C = -3A$
 COLLECTOR-EMITTER SUSTAINING VOLTAGE
 LOW COLLECTOR-EMITTER SATURATION VOLTAGE
 MONOLITHIC CONSTRUCTION WITH BUILT IN BASE-EMITTER SHUNT RESISTORS
 INDUSTRIAL USE

Complementary to TIP100/101/102



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

Characteristic	Symbol	Rating	Unit
Collector-Base Voltage : TIP105	V_{CBO}	-60	V
: TIP106		-80	V
: TIP107		-100	V
Collector-Emitter Voltage	V_{CEO}		
: TIP105		-60	V
: TIP106		-80	V
: TIP107		-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	$^\circ C$



3

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

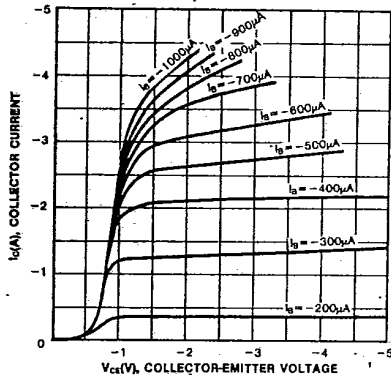
Characteristic	Symbol	Test Condition	Min	Max	Unit
Collector Emitter Sustaining Voltage	$V_{CEO(sus)}$				
: TIP105		$I_C = -30mA, I_B = 0$	-60		V
: TIP106			-80		V
: TIP107			-100		V
Collector Cutoff Current : TIP105	I_{CEO}	$V_{CE} = -30V, I_B = 0$		-50	μA
: TIP106		$V_{CE} = -40V, I_B = 0$		-50	μA
: TIP107		$V_{CE} = -50V, I_B = 0$		-50	μA
Collector Cutoff Current : TIP105	I_{CBO}	$V_{CB} = -80V, I_E = 0$		-50	μA
: TIP106		$V_{CB} = -80V, I_E = 0$		-50	μA
: TIP107		$V_{CB} = -100V, I_E = 0$		-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}	$V_{CB} = -10V, I_E = 0, f = 0.1MHz$		300	pF

PNP EPITAXIAL SILICON DARLINGTON TRANSISTOR

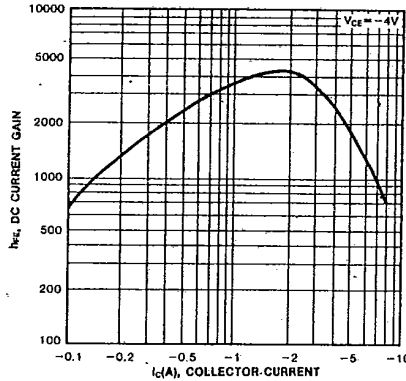
TIP105/106/107

T-33-31

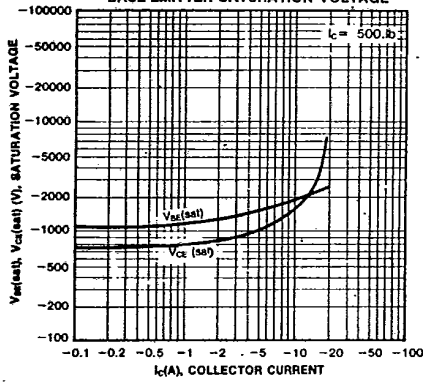
STATIC CHARACTERISTIC



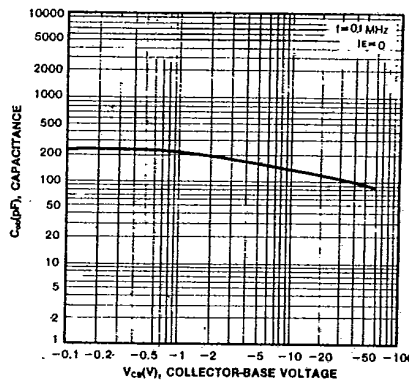
DC CURRENT GAIN



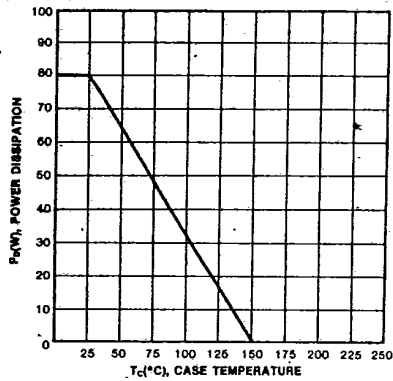
COLLECTOR-EMITTER SATURATION VOLTAGE
BASE-EMITTER SATURATION VOLTAGE



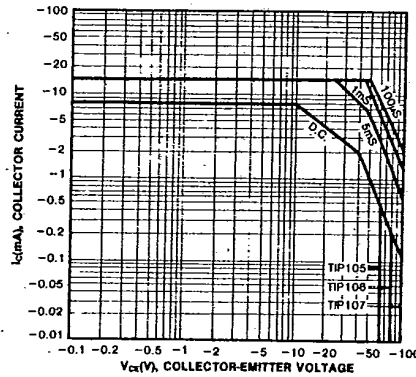
COLLECTOR OUTPUT CAPACITANCE



POWER DERATING



SAFE OPERATING AREA



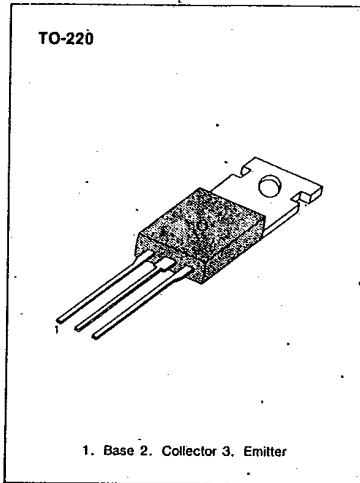
TIP110/111/112

NPN EPITAXIAL SILICON DARLINGTON TRANSISTOR

T-33-29

HIGH DC CURRENT GAIN
 MIN $h_{FE} = 1000$ @ $V_{CE} = 4V, I_C = 1A$
 LOW COLLECTOR-EMITTER SATURATION VOLTAGE
 MONOLITHIC CONSTRUCTION WITH BUILT IN BASE-EMITTER SHUNT RESISTORS
 INDUSTRIAL USE

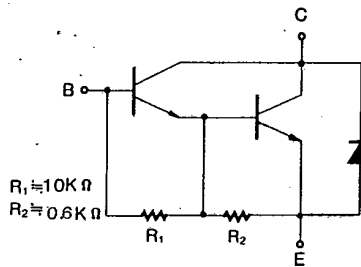
Complementary to TIP115/116/117



3

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

Characteristic	Symbol	Rating	Unit
Collector-Base Voltage : TIP110	V_{CBO}	60	V
: TIP111		80	V
: TIP112		100	V
Collector-Emitter Voltage	V_{CEO}		
: TIP110		60	V
: TIP111		80	V
: TIP112		100	V
Emitter-Base Voltage	V_{EBO}	5	V
Collector Current (DC)	I_C	2	A
Collector Current (Pulse)	I_C	4	A
Base Current (DC)	I_B	50	mA
Collector Dissipation ($T_a = 25^\circ C$)	P_C	2	W
Collector Dissipation ($T_C = 25^\circ C$)	P_C	50	W
Junction Temperature	T_J	150	$^\circ C$
Storage Temperature	T_{stg}	-65~150	$^\circ C$



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

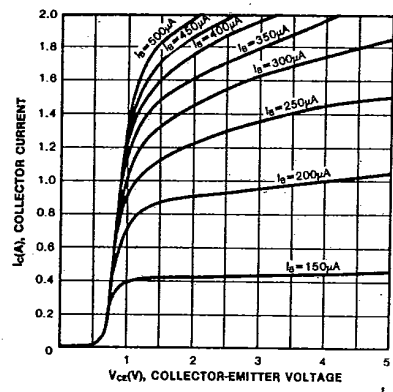
Characteristic	Symbol	Test Condition	Min	Max	Unit
Collector Emitter Sustaining Voltage	$V_{CEO(sus)}$	$I_C = 30mA, I_B = 0$	60		V
: TIP110			80		V
: TIP111			100		V
Collector Cutoff Current	I_{CEO}	$V_{CE} = 30V, I_B = 0$		2	mA
: TIP110		$V_{CE} = 40V, I_B = 0$		2	mA
: TIP111		$V_{CE} = 50V, I_B = 0$		2	mA
Collector Cutoff Current	I_{CBO}	$V_{CB} = 60V, I_E = 0$		1	mA
: TIP110		$V_{CB} = 80V, I_E = 0$		1	mA
: TIP111		$V_{CB} = 100V, I_E = 0$		1	mA
Emitter Cutoff Current	I_{EBO}	$V_{BE} = 5V, I_C = 0$		2	mA
DC Current Gain	h_{FE}	$V_{CE} = 4V, I_C = 1A$	1000		
		$V_{CE} = 4V, I_C = 2A$	500		
Collector Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C = 2A, I_B = 8mA$		2.5	V
Base Emitter On Voltage	$V_{BE(on)}$	$V_{CE} = 4V, I_C = 2A$		2.8	V
Output Capacitance	C_{ob}	$V_{CB} = 10V, I_E = 0, f = 0.1MHz$		100	pF

NPN EPITAXIAL SILICON DARLINGTON TRANSISTOR

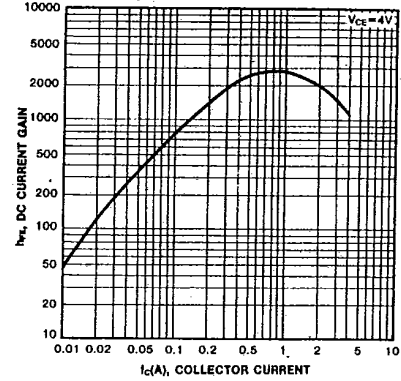
TIP110/111/112
SAMSUNG SEMICONDUCTOR INC

T-33-29

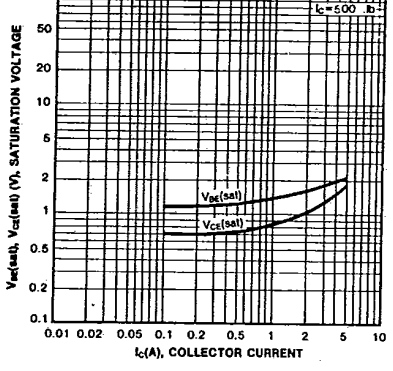
STATIC CHARACTERISTIC



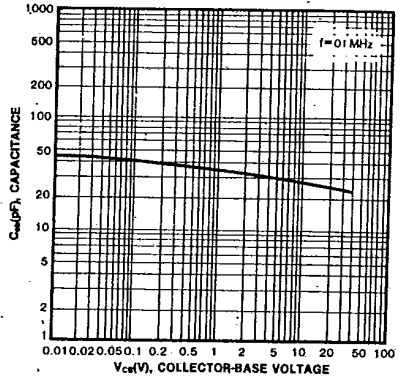
DC CURRENT GAIN



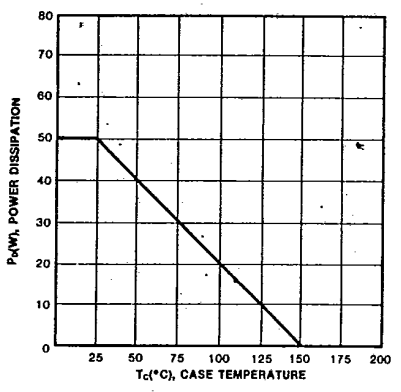
COLLECTOR-EMITTER SATURATION VOLTAGE
BASE-EMITTER SATURATION VOLTAGE



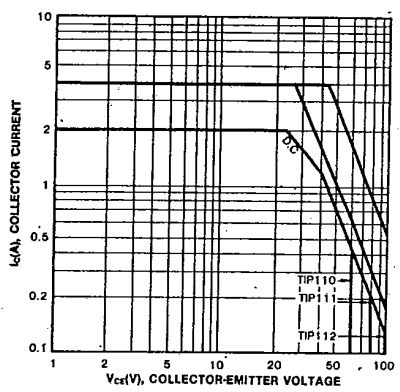
COLLECTOR OUTPUT CAPACITANCE



POWER DERATING



SAFE OPERATING AREA



PNP EPITAXIAL SILICON DARLINGTON TRANSISTOR

TIP115/116/117

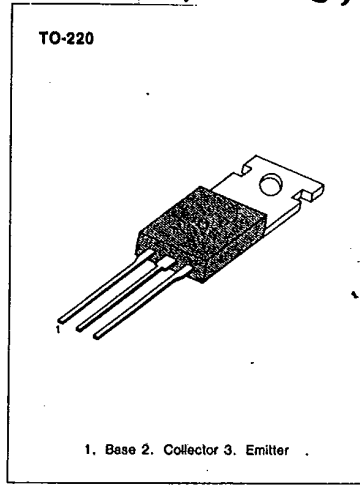
SAMSUNG SEMICONDUCTOR INC

HIGH DC CURRENT GAIN
MIN $h_{FE} = 1000$ @ $V_{CE} = -4V, I_C = -1A$
LOW COLLECTOR-EMITTER SATURATION VOLTAGE
MONOLITHIC CONSTRUCTION WITH BUILT IN BASE-EMITTER SHUNT RESISTORS
INDUSTRIAL USE

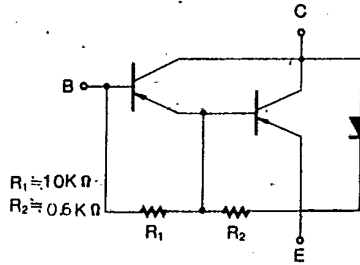
Complementary to TIP110/111/112.

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

Characteristic	Symbol	Rating	Unit
Collector Base Voltage : TIP115	V_{CBO}	-60	V
: TIP116		-80	V
: TIP117		-100	V
Collector Emitter Voltage	V_{CEO}		
: TIP 115		-60	V
: TIP116		-80	V
: TIP117		-100	V
Emitter-Base Voltage	V_{EBO}	-5	V
Collector Current (DC)	I_C	-2	A
Collector Current (Pulse)	I_C	-4	A
Base Current (DC)	I_B	-50	mA
Collector Dissipation ($T_a = 25^\circ C$)	P_C	2	W
Collector Dissipation ($T_c = 25^\circ C$)	P_C	50	W
Junction Temperature	T_J	150	$^\circ C$
Storage Temperature	T_{stg}	-65~150	$^\circ C$



3



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

Characteristic	Symbol	Test Condition	Min	Max	Unit
Collector Emitter Sustaining Voltage	$V_{CE(sus)}$				
: TIP115		$I_C = -30mA, I_B = 0$	-60		V
: TIP116			-80		V
: TIP117			-100		V
Collector Cutoff Current : TIP115	I_{CEO}	$V_{CE} = -30V, I_B = 0$		-2	mA
: TIP116		$V_{CE} = -40V, I_B = 0$		-2	mA
: TIP117		$V_{CE} = -50V, I_B = 0$		-2	mA
Collector Cutoff Current : TIP115	I_{CBO}	$V_{CB} = -60V, I_E = 0$		-1	mA
: TIP116		$V_{CB} = -80V, I_E = 0$		-1	mA
: TIP117		$V_{CB} = -100V, I_E = 0$		-1	mA
Emitter Cutoff Current	I_{EBO}	$V_{BE} = -5V, I_C = 0$		-2	mA
DC Current Gain	h_{FE}	$V_{CE} = -4V, I_C = -1A$	1000		
		$V_{CE} = -4V, I_C = -2A$	500		
Collector Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C = -2A, I_B = -8mA$		-2.5	V
Base Emitter On Voltage	$V_{BE(on)}$	$V_{CE} = -4V, I_C = -2A$		-2.8	V
Output Capacitance	C_{ob}	$V_{CB} = -10V, I_E = 0, f = 0.1MHz$		200	pF

TIP115/116/117

PNP EPITAXIAL SILICON DARLINGTON TRANSISTOR

T-33-31

