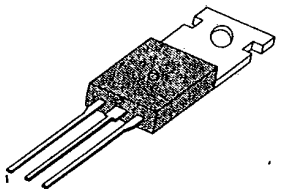
MJE3055T

NPN SILICON TRANSISTOR

GENERAL PURPOSE AND SWITCHING APPLICATIONS
DC CURRENT GAIN SPECIFIED TO 10 AMPERES

High Current Gain-Bandwidth Product (f_T = 2MHz (MIN))

TO-220



1. Base 2. Collector 3. Emitter

3

ABSOLUTE MAXIMUM RATINGS (T_a = 25°C)

Characteristic	Symbol	Rating	Unit
Collector-Base Voltage	V_{CBO}	70	V
Collector-Emitter Voltage	V_{CEO}	60	V
Emitter-Base Voltage	V_{EBO}	5	V
Collector Current	I_C	10	A
Base Current	I_B	6	A
Collector Dissipation (T_C=25°C)	P_C	75	W
Collector Dissipation (T_a=25°C)	P_C	0.6	W
Junction Temperature	Tj	150	°C
Storage Temperature	Tstg	−55~150	°C

ELECTRICAL CHARACTERISTICS (T_a = 25°C)

Characteristic	Symbol	Test Condition	Min	Max	Unit
Collector Emitter Sustaining Voltage	$V_{CEO(sus)}$	I_C=200mA, I_B=0	60		V
Collector Cutoff Current	I_{CEO}	V_{CE}=30V, I_B=0		700	μA
Collector Cutoff Current	I_{CEX}	V_{CE}=70V, $V_{BE(off)}$=−1.5V		1	mA
		V_{CE}=70V, $V_{BE(off)}$=−1.5V, T_C=150°C		5	mA
Emitter Cutoff Current	I_{EBO}	V_{EB}=5V, I_C=0		5	mA
*DC Current Gain	h_{FE}	V_{CE}=4V, I_C=4A	20	100	
		V_{CE}=4V, I_C=10A	5		
*Collector Emitter Saturation Voltage	$V_{CE(sat)}$	I_C=4A, I_B=0.4A		1.1	V
		I_C=10A, I_B=3.3A		8	V
*Base Emitter On Voltage	$V_{BE(on)}$	V_{CE}=4V, I_C=4A		1.8	V
Current Gain Bandwidth Product	f_T	V_{CE}=10V, I_C=500mA, f=500KHz	2		MHz

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

MJE3055T **NPN SILICON TRANSISTOR**

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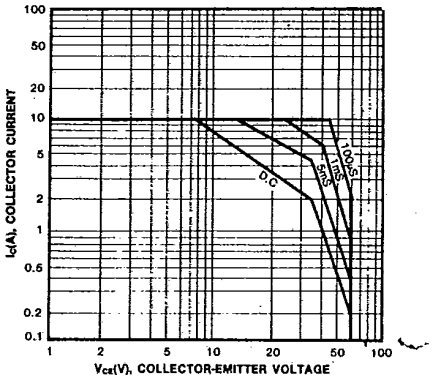
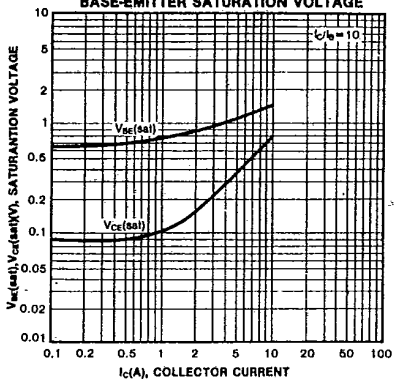
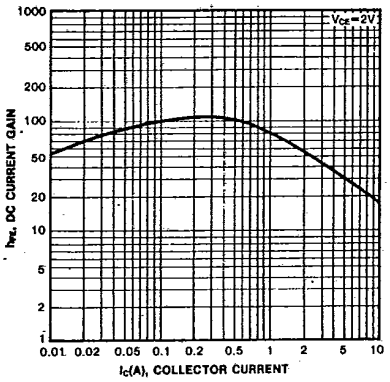
SAFE OPERATING AREA



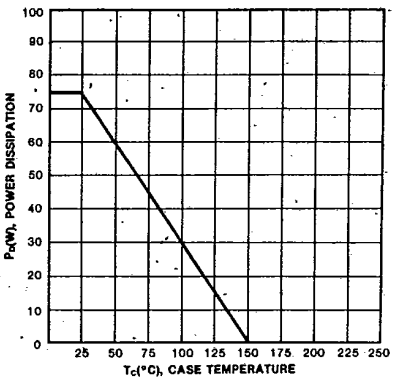
COLLECTOR-EMITTER SATURATION VOLTAGE
BASE-EMITTER SATURATION VOLTAGE



DC CURRENT GAIN



POWER DERATING



TIP29 SERIES
(TIP29/29A/29B/29C) NPN EXITAXIAL SILICON TRANSISTOR

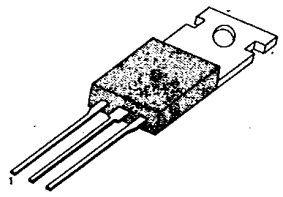
SAMSUNG SEMICONDUCTOR INC

T-33-09

MEDIUM POWER LINEAR SWITCHING APPLICATIONS

- Complementary to TIP30/30A/30B/30C

TO-220



1. Base 2. Collector 3. Emitter

3

ABSOLUTE MAXIMUM RATINGS (T_a=25°C)

Characteristic		Symbol	Rating	Unit
Collector-Base Voltage	: TIP29	V_{CBO}	40	V
	: TIP29A		60	V
	: TIP29B		80	V
	: TIP29C		100	V
Collector-Emitter Voltage	: TIP29	V_{CEO}	40	V
	: TIP29A		60	V
	: TIP29B		80	V
	: TIP29C		100	V
Emitter-Base Voltage		V_{EBO}	5	V
Collector Current (DC)		I_C	1	A
Collector Current (Pulse)		I_C	3	A
Base Current		I_B	0.4	A
Collector Dissipation (T_c=25°C)		P_C	30	W
Collector Dissipation (T_a=25°C)		P_C	2	W
Junction Temperature		Tj	150	°C
Storage Temperature		Tstg	−65~150	°C

ELECTRICAL CHARACTERISTICS (T_c=25°C)

Characteristic		Symbol	Test Condition	Min	Max	Unit
*Collector Emitter Sustaining Voltage	: TIP29	BV_{CEO} (sus)	I_C=30mA, I_B=0	40		V
	: TIP29A			60		V
	: TIP29B			80		V
	: TIP29C			100		V
Collector Cutoff Current	: TIP29/29A	I_{CEO}	V_{CE}=30V, I_B=0		0.3	mA
	: TIP29B/29C		V_{CE}=60V, I_B=0		0.3	mA
Collector Cutoff Current	: TIP29	I_{CES}	V_{CE}=40V, V_{EB}=0		200	μA
	: TIP29A		V_{CE}=60V, V_{EB}=0		200	μA
	: TIP29B		V_{CE}=80V, V_{EB}=0		200	μA
	: TIP29C		V_{CE}=100V, V_{EB}=0		200	μA
Emitter Cutoff Current		I_{EBO}	V_{BE}=5V, I_C=0		1.0	mA
*DC Current Gain		h_{FE}	V_{CE}=4V, I_C=0.2A	40		
			V_{CE}=4V, I_C=1A	15	75	
*Collector-Emitter Saturation Voltage		V_{CE} (sat)	I_C=1A, I_B=125mA		0.7	V
*Base-Emitter On Voltage		V_{BE} (on)	V_{CE}=4V, I_C=1A		1.3	V
Current Gain Bandwidth Product		f_T	V_{CE}=10V, I_C=200mA f=1MHz	3.0		MHz

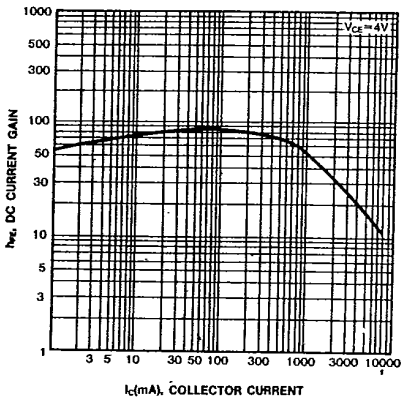
* Pulse Test: PW≤300μs, Duty Cycle≤2%

TIP29 SERIES
(TIP29/29A/29B/29C) NPN EXITAXIAL SILICON TRANSISTOR

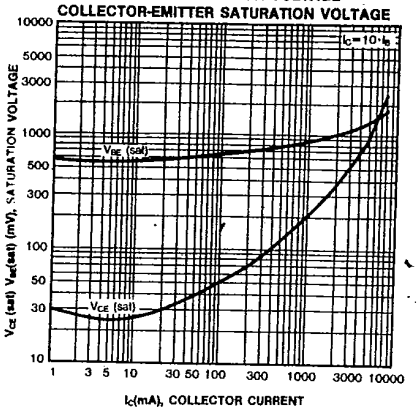
SAMSUNG SEMICONDUCTOR INC

T-33-09

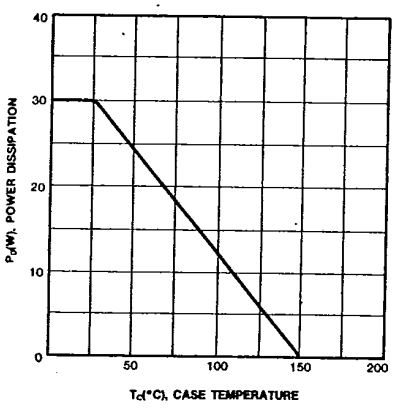
DC CURRENT GAIN



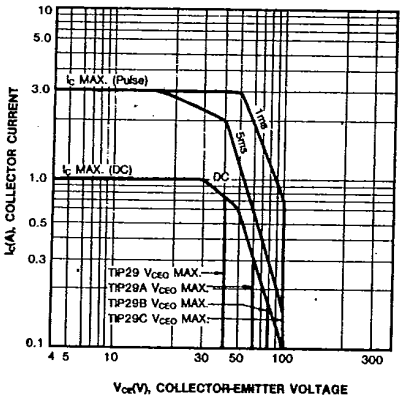
BASE-EMITTER SATURATION VOLTAGE
COLLECTOR-EMITTER SATURATION VOLTAGE



POWER DERATING



SAFE OPERATING AREA



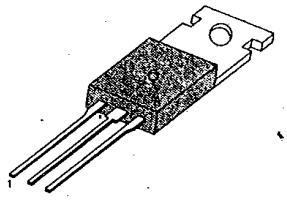
TIP30 SERIES
(TIP30/30A/30B/30C) PNP EXITAXIAL SILICON TRANSISTOR

T-33-19

MEDIUM POWER LINEAR SWITCHING APPLICATIONS

- Complement to TIP29/29A/29B/29C

TO-220



1. Base 2. Collector 3. Emitter

3

ABSOLUTE MAXIMUM RATINGS (T_a=25°C)

Characteristic		Symbol	Rating	Unit
Collector-Base Voltage	: TIP30	V_{CBO}	−40	V
	: TIP30A		−60	V
	: TIP30B		−80	V
	: TIP30C		−100	V
Collector-Emitter Voltage	: TIP30	V_{CEO}	−40	V
	: TIP30A		−60	V
	: TIP30B		−80	V
	: TIP30C		−100	V
Emitter-Base Voltage		V_{EBO}	−5	V
Collector Current (DC)		I_C	−1	A
Collector Current (Pulse)		I_C	−3	A
Base Current		I_B	−0.4	A
Collector Dissipation (T_c=25°C)		P_C	30	W
Collector Dissipation (T_a=25°C)		P_C	2	W
Junction Temperature		Tj	150	°C
Storage Temperature		Tstg	−65~150	°C

ELECTRICAL CHARACTERISTICS (T_c=25°C)

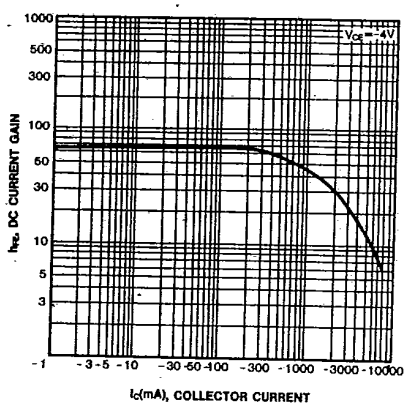
Characteristic		Symbol	Test Condition	Min	Max	Unit
* Collector Emitter Sustaining Voltage	: TIP30	BV_{CEO} (sus)	I_C=−30mA, I_B=0	−40		V
	: TIP30A			−60		V
	: TIP30B			−80		V
	: TIP30C			−100		V
Collector Cutoff Current	: TIP30/30A	I_{CEO}	V_{CE}=−30V, I_B=0		−0.3	mA
	: TIP30B/30C		V_{CE}=−60V, I_B=0		−0.3	mA
Collector Cutoff Current	: TIP30	I_{CES}	V_{CE}=−40V, V_{EB}=0		−200	μA
	: TIP30A		V_{CE}=−60V, V_{EB}=0		−200	μA
	: TIP30B		V_{CE}=−80V, V_{EB}=0		−200	μA
	: TIP30C		V_{CE}=−100V, V_{EB}=0		−200	μA
Emitter Cutoff Current		I_{EBO}	V_{BE}=−5V, I_C=0		−1.0	mA
* DC Current Gain		h_{FE}	V_{CE}=−4V, I_C=−0.2A	40		
			V_{CE}=−4V, I_C=−1A	15	75	
* Collector-Emitter Saturation Voltage		V_{CE} (sat)	I_C=−1A, I_B=−125mA		−0.7	V
* Base-Emitter On Voltage		V_{BE} (on)	V_{CE}=−4V, I_C=−1A		−1.3	V
Current Gain Bandwidth Product		f_T	V_{CE}=−10V, I_C=−200mA f=1MHz	3.0		MHz

* Pulse Test: PW≤300μs, Duty Cycle≤2%

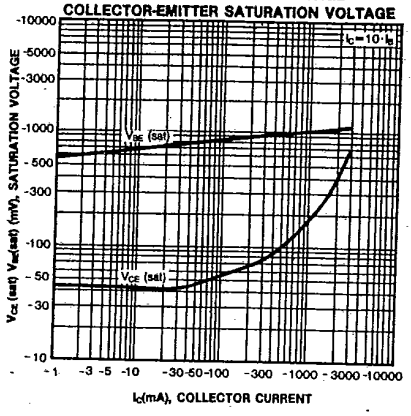
TIP30 SERIES
(TIP30/30A/30B/30C) PNP EXITAXIAL SILICON TRANSISTOR

T-33-19

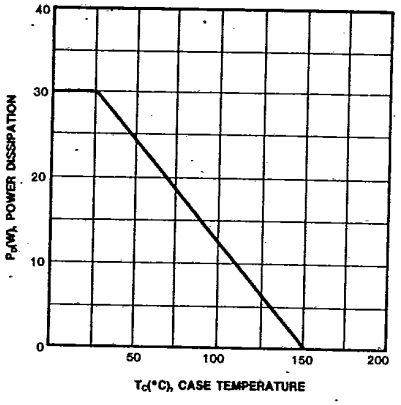
DC CURRENT GAIN



BASE-EMITTER SATURATION VOLTAGE
COLLECTOR-EMITTER SATURATION VOLTAGE



POWER DERATING



SAFE OPERATING AREA