MPSA26

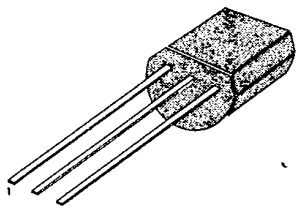
NPN EPITAXIAL SILICON DARLINGTON TRANSISTOR

T-29-29

DARLINGTON TRANSISTOR

- **Collector-Emitter Voltage: V_{CES}=50V**
- **Collector Dissipation: P_C (max)=625mW**

TO-92



1. Emitter 2. Base 3. Collector

ABSOLUTE MAXIMUM RATINGS (T_a=25°C)

Characteristic	Symbol	Rating	Unit
Collector-Emitter Voltage	V_{CES}	50	V
Emitter-Base Voltage	V_{EBO}	10	V
Collector Current	I_C	500	mA
Collector Dissipation	P_C	625	mW
Junction Temperature	Tj	150	°C
Storage Temperature	Tstg	−55~150	°C

* Refer to MPSA25 for graphs

ELECTRICAL CHARACTERISTICS (T_a=25°C)

Characteristic	Symbol	Test Conditions	Min	Typ	Max	Unit
Collector-Emitter Breakdown Voltage	BV_{CES}	I_C=100μA, V_{BE}=0	50			V
Collector-Base Breakdown Voltage	BV_{CBO}	I_C=100μA, I_E=0	50			V
Collector Cut-off Current	I_{CBO}	V_{CB}=40V, I_E=0			100	nA
Emitter Cut-off Current	I_{EBO}	V_{BE}=10V, I_C=0			100	nA
Collector Cut-off Current	I_{CES}	V_{CE}=40V, V_{BE}=0			500	nA
*DC Current Gain	h_{FE}	I_C=10mA, V_{CE}=5V	10K			
		I_C=100mA, V_{CE}=5V	10K			
*Collector-Emitter Saturation Voltage	V_{CE} (sat)	I_C=100mA, I_B=0.1mA			1.5	V
*Base-Emitter On Voltage	V_{BE} (on)	I_C=100mA, V_{CE}=5V			2	V

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

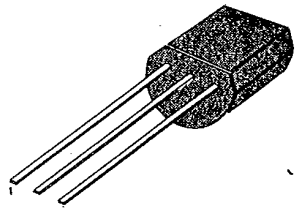
MPSA45 NPN EPITAXIAL SILICON TRANSISTOR

T-29-21

HIGH VOLTAGE TRANSISTOR

- **Collector-Emitter Voltage: V_{CEO}=350V**
- **Collector Dissipation: P_C (max)=625mW**

TO-92



1. Emitter 2. Base 3. Collector

ABSOLUTE MAXIMUM RATINGS (T_a=25°C)

Characteristic	Symbol	Rating	Unit
Collector-Base Voltage	V_{CBO}	400	V
Collector-Emitter Voltage	V_{CEO}	350	V
Emitter-Base Voltage	V_{EBO}	6	V
Collector Current	I_C	300	mA
Collector Dissipation	P_C	625	mW
Junction Temperature	T_J	150	°C
Storage Temperature	Tstg	−55~150	°C

ELECTRICAL CHARACTERISTICS (T_a=25°C)

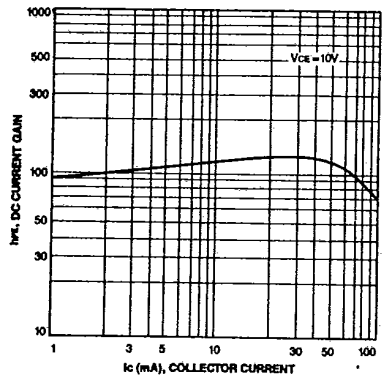
Characteristic	Symbol	Test Conditions	Min	Typ	Max	Unit
*Collector-Emitter Breakdown Voltage	BV_{CEO}	I_C=1mA, I_B=0	350			V
Collector-Emitter Breakdown Voltage	BV_{CES}	I_C=100μA, V_{BE}=0	400			V
Collector-Base Breakdown Voltage	BV_{CBO}	I_C=100μA, I_E=0	400			V
Emitter-Base Breakdown Voltage	BV_{EBO}	I_E=10μA, I_C=0	6			V
Collector Cut-off Current	I_{CBO}	V_{CB}=320V, I_E=0			100	nA
Emitter Cut-off Current	I_{EBO}	V_{BE}=4V, I_C=0			100	nA
Collector Cutoff Current	I_{CES}	V_{CE}=320V, V_{BE}=0			500	nA
*DC Current Gain	h_{FE}	I_C=1mA, V_{CE}=10V	40			
		I_C=10mA, V_{CE}=10V	50		200	
		I_C=50mA, V_{CE}=10V	45			
		I_C=100mA, V_{CE}=10V	40			
*Collector-Emitter Saturation Voltage	V_{CE} (sat)	I_C=1mA, I_B=0.1mA			0.4	V
		I_C=10mA, I_B=1mA			0.5	V
		I_C=50mA, I_B=5mA			0.75	V
*Base-Emitter Saturation Voltage	V_{BE} (sat)	I_C=10mA, I_B=1mA			0.75	V
Output Capacitance	Cob	V_{CB}=20V, I_E=0 f=1MHz			7	pF

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

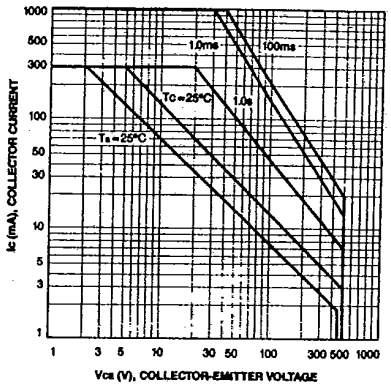
MPSA45 NPN EPITAXIAL SILICON TRANSISTOR

T-29-21

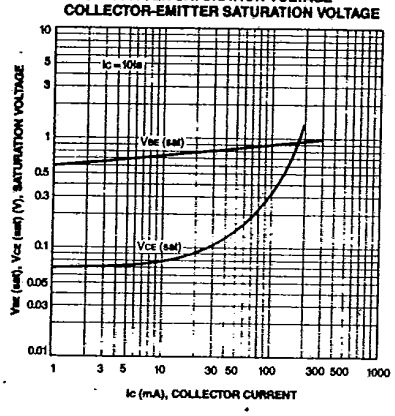
DC CURRENT GAIN



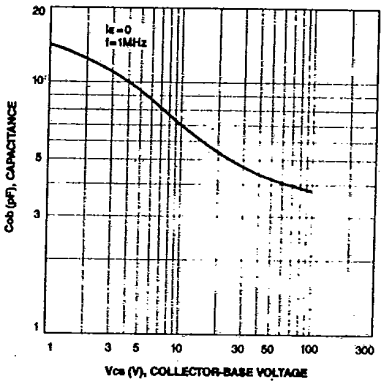
SAFE OPERATING AREA



BASE-EMITTER SATURATION VOLTAGE
COLLECTOR-EMITTER SATURATION VOLTAGE



COLLECTOR OUTPUT CAPACITANCE



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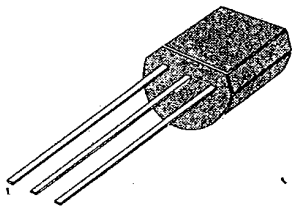
MPSA55 PNP EPITAXIAL SILICON TRANSISTOR

T-29-21

AMPLIFIER TRANSISTOR

- **Collector-Emitter Voltage: V_{CEO}=60V**
- **Collector Dissipation: P_C (max)=625mW**

TO-92



1. Emitter 2. Base 3. Collector

ABSOLUTE MAXIMUM RATINGS (T_a=25°C)

Characteristic	Symbol	Rating	Unit
Collector-Base Voltage	V_{CBO}	60	V
Collector-Emitter Voltage	V_{CEO}	60	V
Emitter-Base Voltage	V_{EBO}	4	V
Collector Current	I_C	500	mA
Collector Dissipation	P_C	625	mW
Junction Temperature	Tj	150	°C
Storage Temperature	Tstg	−55~150	°C

ELECTRICAL CHARACTERISTICS (T_a=25°C)

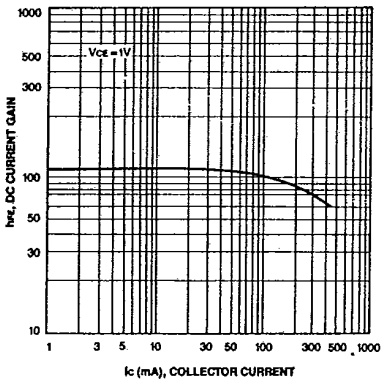
Characteristic	Symbol	Test Conditions	Min	Typ	Max	Unit
*Collector-Emitter Breakdown Voltage	BV_{CEO}	I_C=1mA, I_B=0	60			V
Emitter-Base Breakdown Voltage	BV_{EBO}	I_E=100μA, I_C=0	4			V
Collector Cut-off Current	I_{CEO}	V_{CE}=60V, I_B=0			100	nA
Collector Cut-off Current	I_{CBO}	V_{CB}=60V, I_E=0			100	nA
DC Current Gain	h_{FE}	I_C=10mA, V_{CE}=1V	50			
		I_C=100mA, V_{CE}=1V	50			
Collector-Emitter Saturation Voltage	V_{CE} (sat)	I_C=100mA, I_B=10mA			0.25	V
Current Gain Bandwidth Product	f_T	I_C=100mA, V_{CE}=1V f=100MHz	50			MHz
Base-Emitter On Voltage	V_{BE} (on)	I_C=100mA, V_{CE}=1V			1.2	V

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

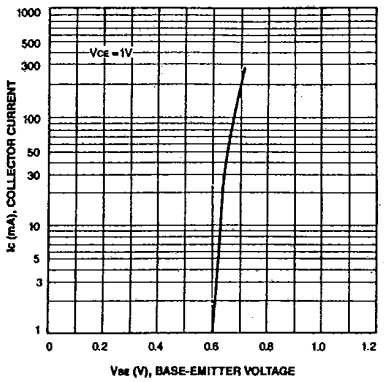
MPSA55 PNP EPITAXIAL SILICON TRANSISTOR

T-29-21

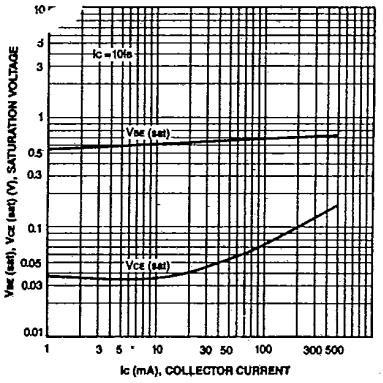
DC CURRENT GAIN



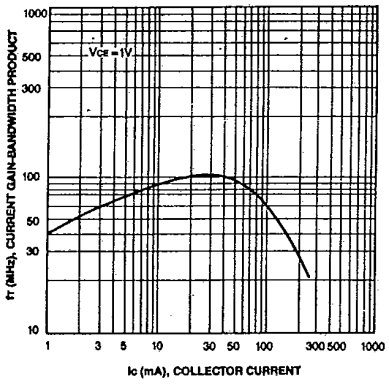
BASE-EMITTER ON VOLTAGE



COLLECTOR-EMITTER SATURATION VOLTAGE
BASE-EMITTER SATURATION VOLTAGE



CURRENT GAIN-BANDWIDTH PRODUCT



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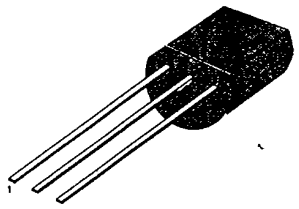
MPSA62

PNP EPITAXIAL SILICON DARLINGTON TRANSISTOR

DARLINGTON TRANSISTOR

- **Collector-Emitter Voltage: V_{CES}=20V**
- **Collector Dissipation: P_C (max)=625mW**

TO-92



1. Emitter 2. Base 3. Collector

ABSOLUTE MAXIMUM RATINGS (T_a=25°C)

Characteristic	Symbol	Rating	Unit
Collector-Emitter Voltage	V_{CES}	20	V
Collector-Base Voltage	V_{CBO}	20	V
Emitter-Base Voltage	V_{EBO}	10	V
Collector Current	I_C	500	mA
Collector Dissipation	P_C	625	mW
Junction Temperature	T_j	150	°C
Storage Temperature	Tstg	−55~150	°C

ELECTRICAL CHARACTERISTICS (T_a=25°C)

Characteristic	Symbol	Test Conditions	Min	Typ	Max	Unit
Collector-Emitter Breakdown Voltage	BV_{CES}	I_C=100μA, V_{BE}=0	20			V
Collector Cut-off Current	I_{CBO}	V_{CB}=15V, I_E=0			100	nA
Emitter Cut-off Current	I_{EBO}	V_{BE}=10V, I_C=0			100	nA
*DC Current Gain	h_{FE}	I_C=10mA, V_{CE}=5V	20K			
*Collector-Emitter Saturation Voltage	V_{CE} (sat)	I_C=10mA, I_B=0.01mA			1.0	V
*Base-Emitter On Voltage	V_{BE} (on)	I_C=10mA, V_{CE}=5V			1.4	V

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

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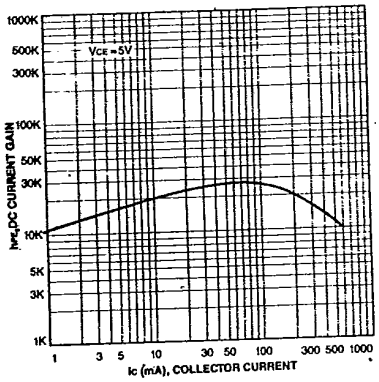
MPSA62

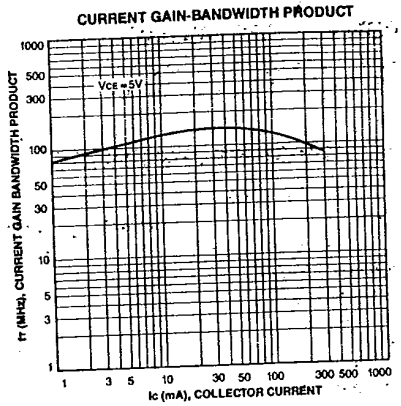
PNP EPITAXIAL SILICON DARLINGTON TRANSISTOR

T-29-29

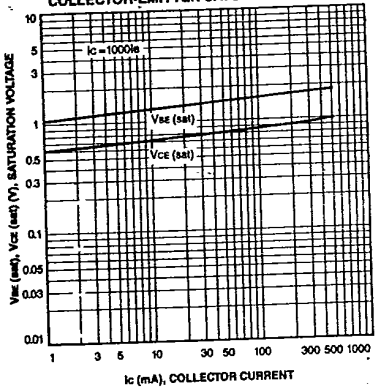
DC CURRENT GAIN



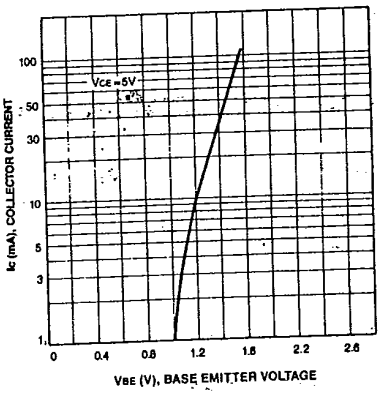
CURRENT GAIN-BANDWIDTH PRODUCT



BASE-EMITTER SATURATION VOLTAGE
COLLECTOR-EMITTER SATURATION VOLTAGE



BASE EMITTER ON VOLTAGE



MPSA63

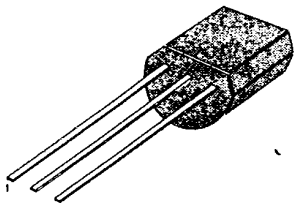
PNP EPITAXIAL SILICON DARLINGTON TRANSISTOR

T-29-29

DARLINGTON TRANSISTOR

- **Collector-Emitter Voltage: V_{CES}=30V**
- **Collector Dissipation: P_C (max)=625mW**

TO-92



1. Emitter 2. Base 3. Collector

ABSOLUTE MAXIMUM RATINGS (T_a=25°C)

Characteristic	Symbol	Rating	Unit
Collector-Emitter Voltage	V_{CES}	30	V
Collector-Base Voltage	V_{CBO}	30	V
Emitter-Base Voltage	V_{EBO}	10	V
Collector Current	I_C	500	mA
Collector Dissipation	P_C	625	mW
Junction Temperature	T_j	150	°C
Storage Temperature	Tstg	−55~150	°C

* Refer to MPSA62 for graphs

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ELECTRICAL CHARACTERISTICS (T_a=25°C)

Characteristic	Symbol	Test Conditions	Min	Typ	Max	Unit
Collector-Emitter Breakdown Voltage	BV_{CES}	I_C=100μA, V_{BE}=0	30			V
Collector Cut-off Current	I_{CBO}	V_{CB}=30V, I_E=0			100	nA
Emitter Cut-off Current	I_{EBO}	V_{BE}=10V, I_C=0			100	nA
*DC Current Gain	h_{FE}	I_C=10mA, V_{CE}=5V	5K			
		I_C=100mA, V_{CE}=5V	10K			
*Collector-Emitter Saturation Voltage	V_{CE} (sat)	I_C=100mA, I_B=0.1mA			1.5	V
*Base-Emitter On Voltage	V_{BE} (on)	I_C=100mA, V_{CE}=5V			2	V
Current Gain Bandwidth Product	f_T	I_C=100mA, V_{CE}=5V f=100MHz	125			MHz

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