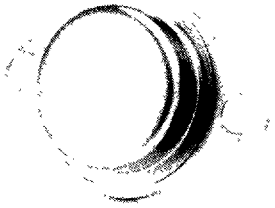
160 WATT (20 AMP CONTINUOUS, 40 AMP PEAK)

2N6283, 2N6284, 2N6286, 2N6287



FEATURES

- Electrical specifications guaranteed at 25°C
- Guaranteed minimum DC current gain at full rated current
- Hermetically sealed

DESCRIPTION

The 2N6283, 2N6284 devices are three-terminal NPN Darlington Power Transistors. The 2N6286, 2N6287 devices are PNP Darlington Power Transistors. These devices are monolithic epitaxial base structures with built-in base to emitter shunt resistors. The devices are CVD glass passivated to increase reliability and provide reduced high-temperature reverse leakage current. Internal diode protection (D1) of the Darlington configuration is built into the structure to limit the device power dissipation during negative overshoot.

*MAXIMUM RATINGS

PARAMETER	SYMBOL	MAXIMUM	UNITS
Collector Emitter Voltage 2N6283, 2N6286 2N6284, 2N6287	V_{CEO}	 80 100	Vdc
Collector Base Voltage 2N6283, 2N6286 2N6284, 2N6287	V_{CBO}	 80 100	Vdc
Emitter Base Voltage	V_{EBO}	5	Vdc
Collector Current Continuous Peak	I_C	 20 40	Adc
Base Current	I_B	0 5	Adc
Thermal Resistance	θ_{JC}	1 09	°C/Watt
Total Internal Power Dissipation @ T_C = 25°C[1]	P_D	160	Watts
Operating Junction and Storage Temperature	T_J T_{STG}	−65 to +200	°C

*Indicates JEDEC Registered Data
(1) For operation above T_C = 25°C, derate @ 0 915 W/°C

DEVICE SELECTION GUIDE

DEVICE	VOLTAGE RATING	POLARITY
2N6283	80V	NPN
2N6284	100V	NPN
2N6286	80V	PNP
2N6287	100V	PNP

These Darlington devices are hermetically sealed copper/steel TO-3 packages providing high reliability and low thermal resistance.

2N6283, 2N6284,
2N6286, 2N6287

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*ELECTRICAL CHARACTERISTICS

All parameters are guaranteed at T_C = 25°C, unless otherwise specified.

Parameter	Symbol	Test Conditions	Minimum	Maximum	Units
ON CHARACTERISTICS					
Collector Emitter Saturation Voltage[1]	$V_{CE(sat)}$	I_C = 10 Adc, I_B = 40 mAdc I_C = 20 Adc; I_B = 100 mAdc		2 0 3 0	Vdc
Base Emitter Turn-on Voltage[1]	$V_{BE(on)}$	I_C = 10 Adc, V_{CE} = 3 Vdc		2 8	Vdc
Base Emitter Saturation Voltage[1]	$V_{BE(sat)}$	I_C = 20 Adc, I_B = 200 mAdc		4 0	Vdc
DC Current Gain[1]	h_{FE}	I_C = 10 Adc; V_{CE} = 3 Vdc I_C = 20 Adc, V_{CE} = 3 Vdc	750 100	18,000[2] 18,000[2]	
OFF CHARACTERISTICS					
Collector Emitter Sustaining Voltage[1] 2N6283, 2N6286 2N6284, 2N6287	$V_{CEO(sus)}$	I_{CE} = 100 mAdc, I_B = OA	 80 100		Vdc
Emitter Cutoff Current	I_{EBO}	V_{EB} = 5 Vdc, I_C = OA		2.0	mAdc
Collector Cutoff Current 2N6283, 2N6286 2N6284, 2N6287	I_{CEO}	 V_{CE} = 40 Vdc; I_B = OA V_{CE} = 50 Vdc; I_B = OA		 1 0 1.0	mAdc
Collector Cutoff Current	I_{CEX}	V_{CE} = Rated; $V_{BE(off)}$ = 1.5 Vdc V_{CE} = Rated; $V_{BE(off)}$ = 1 5 Vdc, T_C = 150°C		0 5 5 0	mAdc
DYNAMIC CHARACTERISTICS					
Output Capacitance	C_{ob}	V_{CB} = 10 Vdc; I_E = 0 Adc f = 0.1 MHz		400	pF
Small Signal Current Gain	h_{fe}	I_C = 10 Adc; V_{CE} = 3 Vdc f = 1 kHz	300		
Common Emitter Short Circuit Forward Transfer Ratio	h_{fe}	I_C = 10 Adc, V_{CE} = 3 Vdc f = 1 MHz	4		

*Indicates JEDEC Registered Data
(1) Pulse tested with pulse width ~ 300 μS and duty cycle ~ 2 0%

160 WATT (20 AMP CONTINUOUS, 40 AMP PEAK)

2N6283, 2N6284, 2N6286, 2N6287

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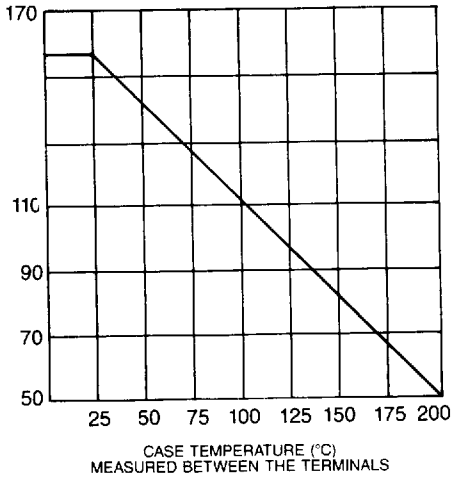
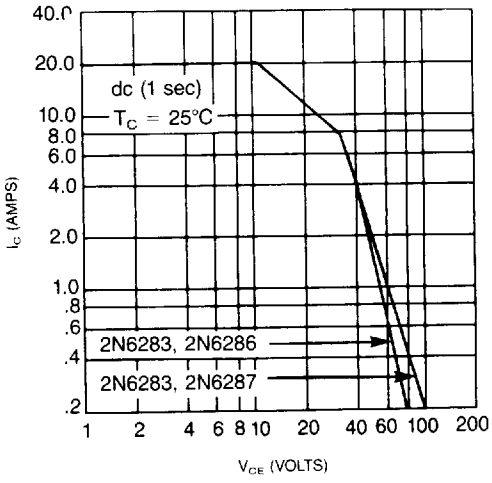
OPERATIONAL DATA

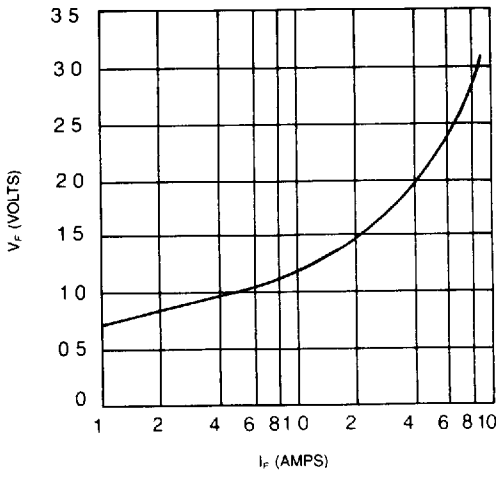
POWER DERATING



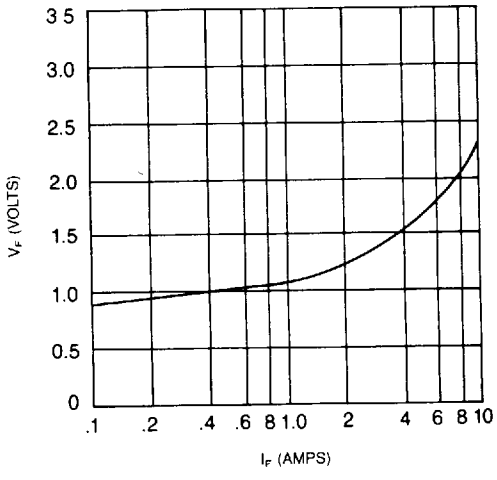
SAFE OPERATING AREA



FORWARD VOLTAGE OF D1 (2N6283, 2N6284)



FORWARD VOLTAGE OF D1 (2N6286, 2N6287)



2N6283, 2N6284,
2N6286, 2N6287

160 WATT (20 AMP CONTINUOUS, 40 AMP PEAK)

OPERATIONAL DATA

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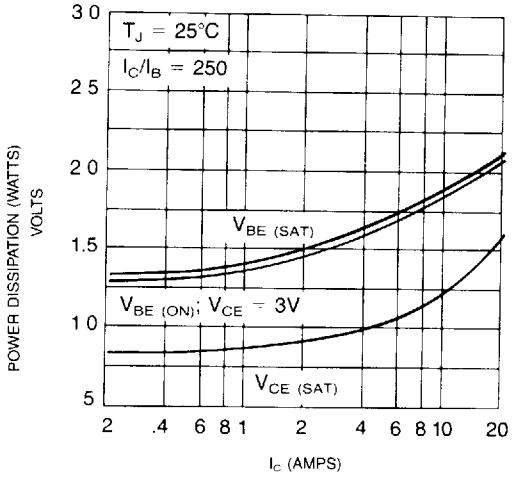
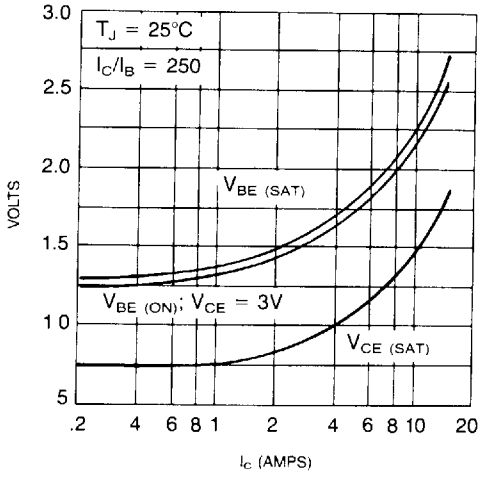
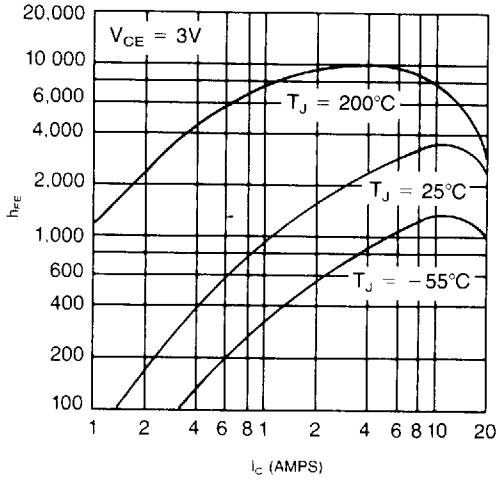
ON VOLTAGE VS COLLECTOR CURRENT (2N6283, 2N6284)



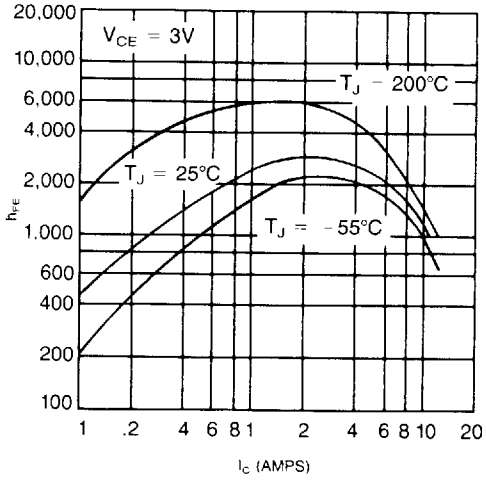
ON VOLTAGE VS COLLECTOR CURRENT (2N6286, 2N6287)



DC COLLECTOR CURRENT GAIN VS COLLECTOR CURRENT (2N6283, 2N6284)



DC COLLECTOR CURRENT GAIN VS COLLECTOR CURRENT (2N6286, 2N6287)



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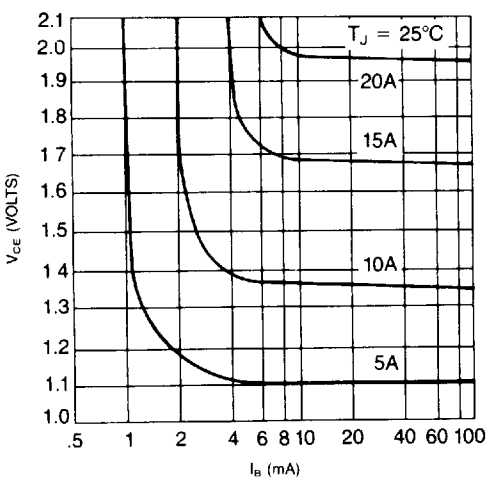
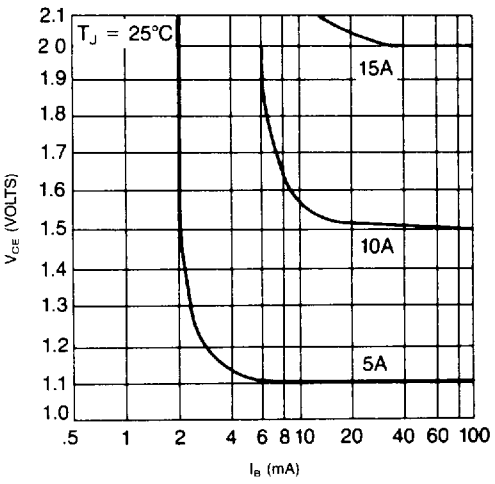
OPERATIONAL DATA

COLLECTOR SATURATION REGION (2N6283, 2N6284)

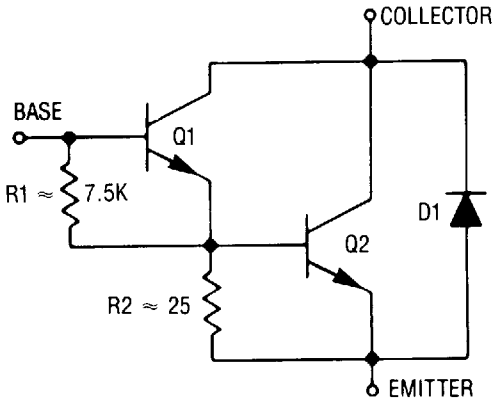


COLLECTOR SATURATION REGION (2N6286, 2N6287)

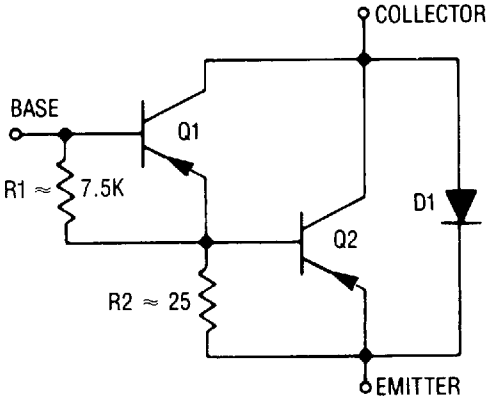


BLOCK DIAGRAMS

NPN



PNP



2N6283, 2N6284,
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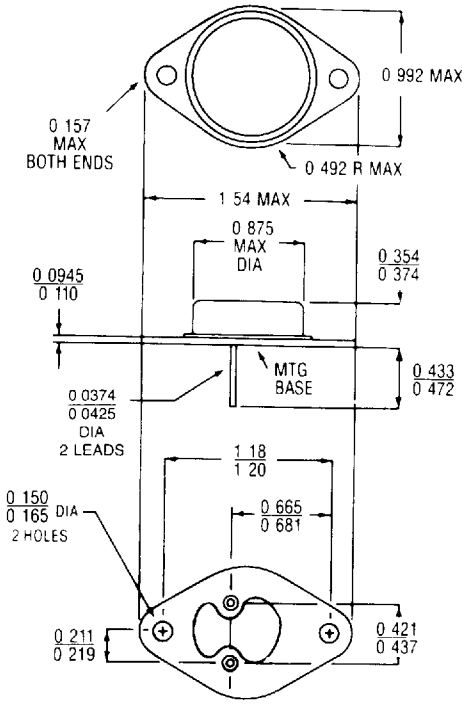
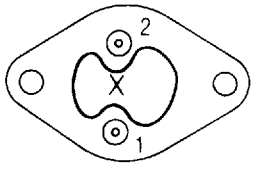
DEVICE OUTLINE



Bottom View



1 — Base
2 — Emitter
Case Is Collector

NOTE. Case temperature measured at point X
All dimensions are in inches.