2N6284
2N6287

Complementary power Darlington transistors

Features

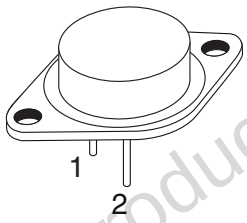
- Complementary transistors in monolithic Darlington configuration
- Integrated collector-emitter antiparallel diode

Applications

- Audio power amplifier
- DC-AC converter
- General purpose switching applications

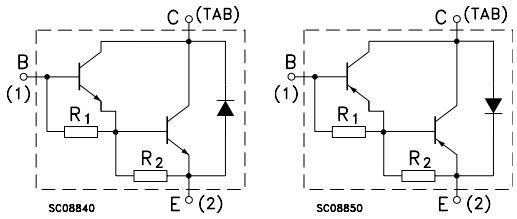
Description

The 2N6284 is an epitaxial-base NPN power transistor in monolithic Darlington configuration mounted in TO-3 metal case. It is inteded for general purpose amplifier and low frequency switching applications.
The complementary PNP type is 2N6287.



TO-3

Figure 1. Internal schematic diagrams



R_1 typ. = 8 kΩ R_2 typ. = 60 kΩ

Table 1. Device summary

Order code	Marking	Package	Packaging
2N6284 2N6287	2N6284 2N6287	TO-3	Bag

1 Absolute maximum ratings

Table 2. Absolute maximum ratings

Symbol	Parameter		Value	Unit
		NPN	2N6284	
		PNP	2N6287	
V_{CBO}	Collector-base voltage (I_E = 0)		100	V
V_{CEO}	Collector-emitter voltage (I_B = 0)		100	V
V_{EBO}	Emitter-base voltage (I_C = 0)		5	V
I_C	Collector current		20	A
I_{CM}	Collector peak current (t_P < 5 ms)		40	A
I_B	Base current		0.5	A
P_{tot}	Total dissipation at T_C = 25 °C		160	W
T_{stg}	Storage temperature		-65 to 200	°C
T_J	Max. operating junction temperature		200	°C

For PNP type voltage and current values are negative

Table 3. Thermal data

Symbol	Parameter		Value	Unit
$R_{thj\text{-}case}$	Thermal resistance junction-case	Max	1.09	°C/W

2 Electrical characteristics

(T_{case} = 25 °C; unless otherwise specified)

Table 4. Electrical characteristics

Symbol	Parameter	Test conditions	Min.	Typ.	Max.	Unit
I_{CEV}	Collector cut-off current (V_{BE} = -1.5 V)	V_{CE} = 100 V V_{CE} = 100 V T_c = 150 °C			0.5 5	mA mA
I_{CEO}	Collector cut-off current (I_B = 0)	V_{CE} = 50 V			1	mA
I_{EBO}	Emitter cut-off current (I_C = 0)	V_{EB} = 5 V			2	mA
$V_{CEO(sus)}$ (1)	Collector-emitter sustaining voltage (I_B = 0)	I_C = 100 mA	100			V
$V_{CE(sat)}$ (1)	Collector-emitter saturation voltage	I_C = 10 A I_B = 40 mA I_C = 20 A I_B = 200 mA			2 3	V V
$V_{BE(sat)}$ (1)	Base-emitter saturation voltage	I_C = 20 A I_B = 200 mA			4	V
V_{BE} (1)	Base-emitter voltage	I_C = 10 A V_{CE} = 3 V			2.8	V
h_{FE} (1)	DC current gain	I_C = 10 A V_{CE} = 3 V I_C = 20 A V_{CE} = 3 V	750 100		18000	
h_{fe}	Small signal current gain	I_C = 10 A V_{CE} = 3 V f = 1 kHz	300			
C_{CBO}	Collector-base capacitance (I_E = 0)	V_{CB} = 10 V f = 100 kHz for 2N6284 for 2N6287			 400 600	 pF pF

1. Pulsed duration = 300 µs, duty cycle ≤1.5 %

For PNP type voltage and current values are negative

2.1 Electrical characteristics (curves)

Figure 2. DC current gain (NPN type)

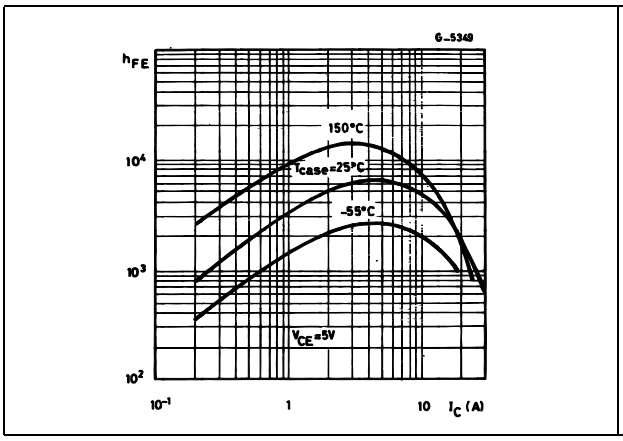


Figure 3. DC current gain (PNP type)

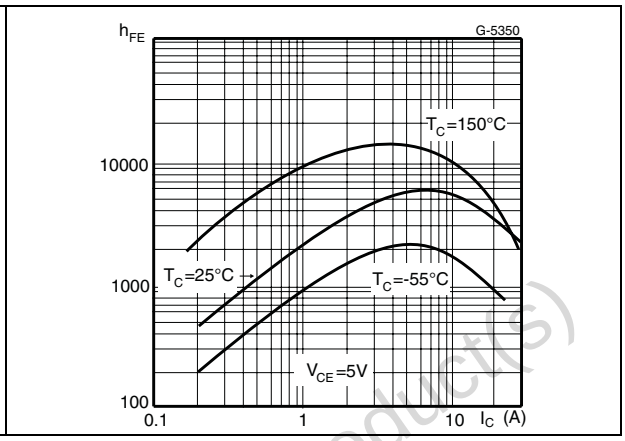


Figure 4. DC current gain (NPN type)

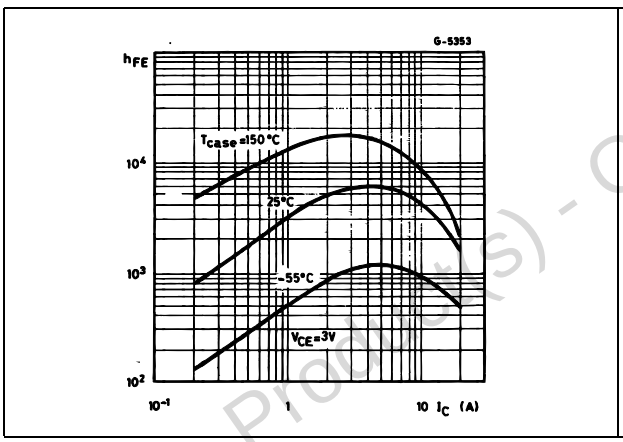


Figure 5. DC current gain (PNP type)

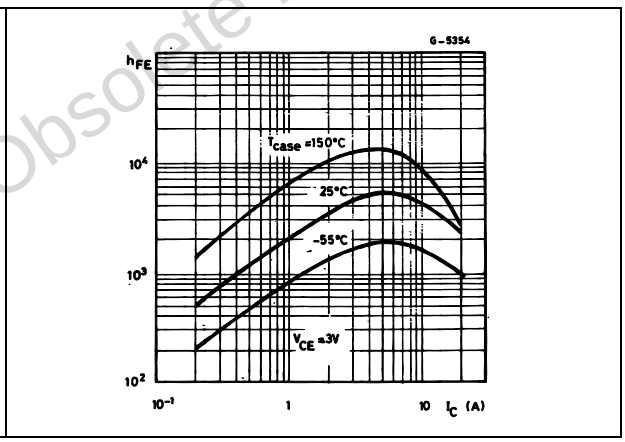


Figure 6. Collector-emitter saturation voltage (NPN type)

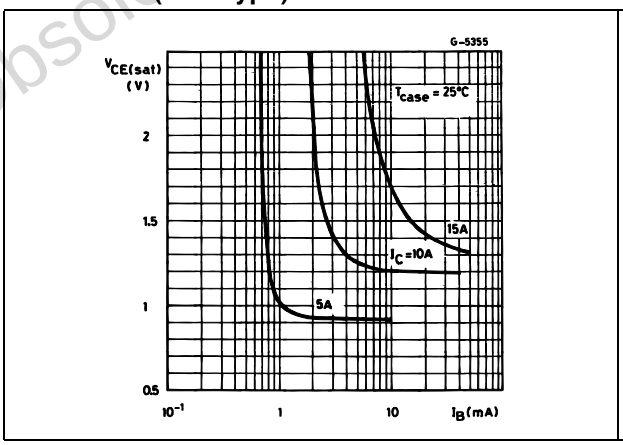
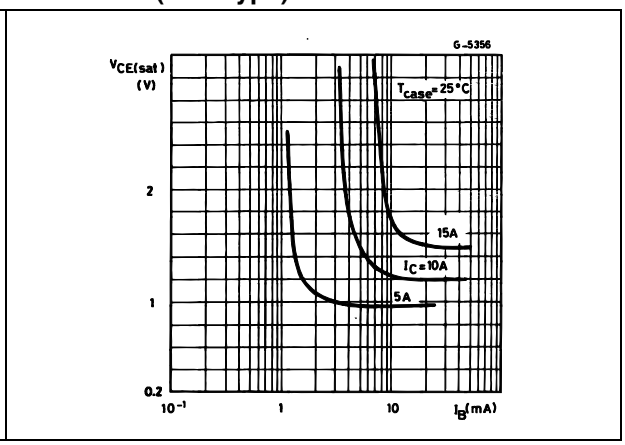


Figure 7. Collector-emitter saturation voltage (PNP type)



3 Package mechanical data

In order to meet environmental requirements, ST offers these devices in different grades of ECOPACK® packages, depending on their level of environmental compliance. ECOPACK® specifications, grade definitions and product status are available at: www.st.com. ECOPACK® is an ST trademark.

4 Revision history

Table 5. Document revision history

Date	Revision	Changes
02-Mar-2000	2	
26-Jan-2009	3	Added paragraph *2.1*

TO-3 mechanical data

DIM.	mm.		
	min.	typ	max.
A	11.00		13.10
B	0.97		1.15
C	1.50		1.65
D	8.32		8.92
E	19.00		20.00
G	10.70		11.10
N	16.50		17.20
P	25.00		26.00
R	4.00		4.09
U	38.50		39.30
V	30.00		30.30