



SGS-THOMSON
MICROELECTRONICS

BD675/75A/77/77A/79/79A/81
BD676/76A/78/78A/80/80A/82

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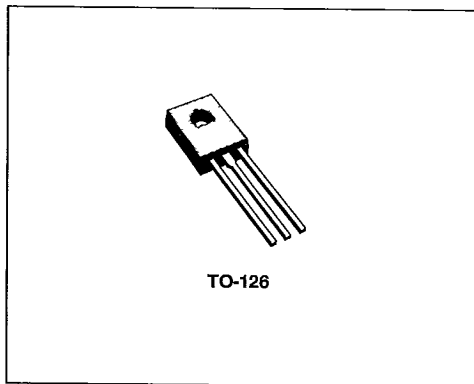
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MEDIUM POWER DARLINGTONS

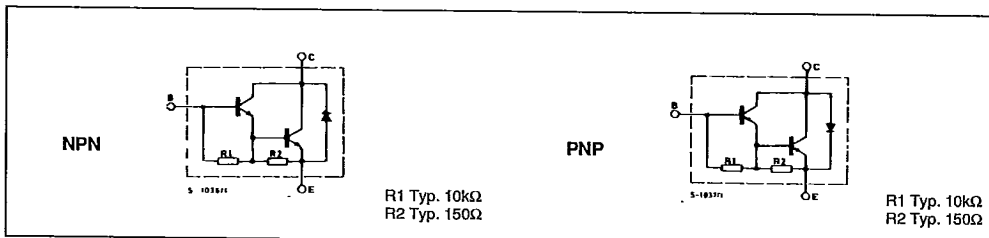
DESCRIPTION

The BD675, BD675A, BD677, BD677A, BD679, BD679A and BD681 are silicon epitaxial-base NPN power transistors in monolithic Darlington configuration and are mounted in Jedec TO-126 plastic package. They are intended for use in medium power linear and switching applications.

The complementary PNP types are the BD676, BD676A, BD678, BD678A, BD680, BD680A and BD682 respectively.



INTERNAL SCHEMATIC DIAGRAMS



ABSOLUTE MAXIMUM RATINGS

Symbol	Parameter	NPN PNP*	Value				Unit
			BD675/A BD676A	BD677/A BD677A	BD679/A BD680A	BD681 BD682	
V _{CE0}	Collector-emitter Voltage (I _E = 0)		45	60	80	100	V
V _{CEO}	Collector-emitter Voltage (I _B = 0)		45	60	80	100	V
V _{EB0}	Emitter-base Voltage (I _C = 0)		5				V
I _C	Collector Current		4				A
I _{CM}	Collector Peak Current (repetitive)		6				A
I _B	Base Current		100				mA
P _{tot}	Total Power Dissipation at T _{case} ≤ 25°C		40				W
T _{stg}	Storage Temperature		- 65 to 150				°C
T _J	Junction Temperature		150				°C

For PNP types voltage and current values are negative.

THERMAL DATA

$R_{th\ j-case}$	Thermal Resistance Junction-case	Max	3.12	°C/W
$R_{th\ j-amb}$	Thermal Resistance Junction-ambient	Max	100	°C/W

ELECTRICAL CHARACTERISTICS ($T_{case} = 25^{\circ}C$ unless otherwise specified)

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
I_{CBO}	Collector Cutoff Current ($I_E = 0$)	$V_{CB} = \text{rated } V_{CBO}$ $V_{CB} = \text{rated } V_{CBO}$ $T_{case} = 100^{\circ}C$			200 2	μA mA
I_{CEO}	Collector Cutoff Current ($I_B = 0$)	$V_{CE} = \text{half rated } V_{CEO}$			500	μA
I_{EBO}	Emitter Cutoff Current ($I_C = 0$)	$V_{EB} = 5V$			2	mA
$V_{CEO(sus)}^*$	Collector-emitter Sustaining Voltage ($I_B = 0$)	$I_C = 50mA$ for BD675/75A/76/76A for BD677/77A/78/78A for BD679/79A/80/80A for BD681/82	45 60 80 100			V V V V
$V_{CE(sat)}^*$	Collector-emitter Saturation Voltage	for BD675/76/77/78/79/80/81/82 $I_C = 1.5A$ $I_B = 30mA$ for BD675A/76A/77A/78A/79A/80A $I_C = 2A$ $I_B = 40mA$			2.5 2.8	V V
V_{BE}^*	Base-emitter Voltage	for 675/76/77/78/79/80/81/82 $I_C = 1.5A$ $V_{CE} = 3V$ for 675A/76A/77A/78A/79A/80A $I_C = 2A$ $V_{CE} = 3V$			2.5 2.5	V V
h_{FE}^*	DC current Gain	for 675/76/77/78/79/80/81/82 $I_C = 1.5A$ $V_{CE} = 3V$ for 675A/76A/77A/78A/79A/80A $I_C = 2A$ $V_{CE} = 3V$	750 750			
h_{fe}	Small Signal Current Gain	$I_C = 1.5A$ $V_{CE} = 3V$ $f = 1MHz$	1			

* Pulsed : pulse duration = 300

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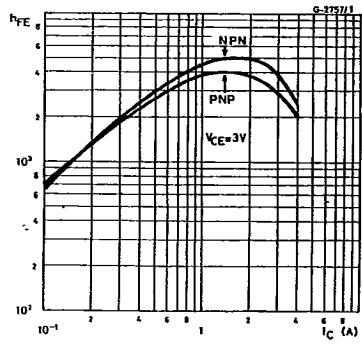
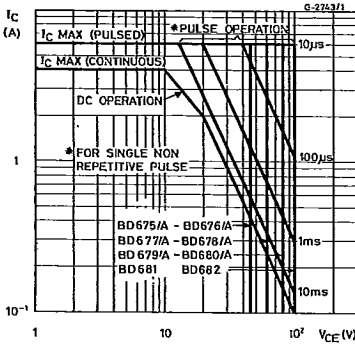
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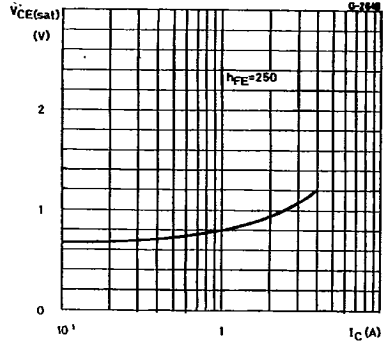
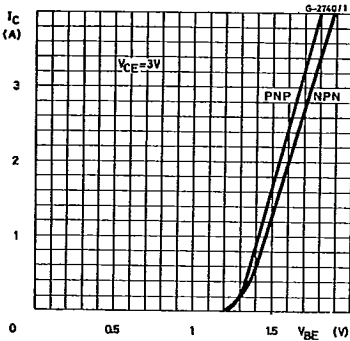
Safe Operating Areas.

DC Current Gain.



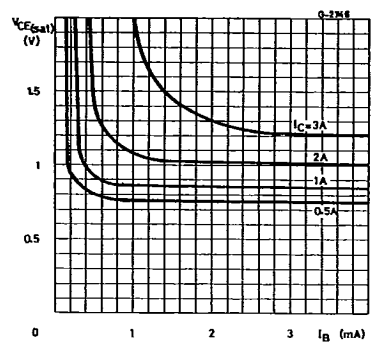
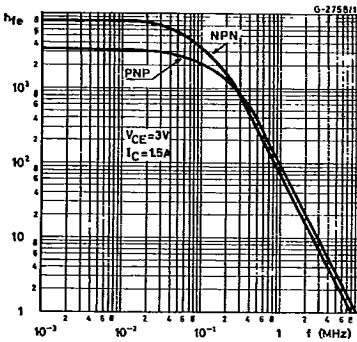
DC Transconductance.

Collector-emitter Saturation Voltage.



Small Signal Current gain.

Collector-emitter Saturation Voltage (NPN types).



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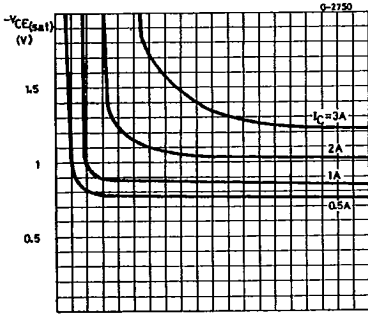
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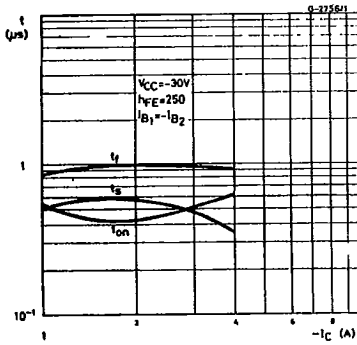
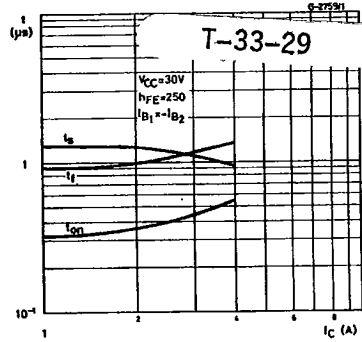
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Collector-emitter Saturation Voltage (PNP).

Saturated Switching Characteristics (NPN).



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