SGS-THOMSON MICROELECTRONICS

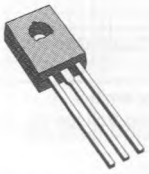
BD675/75A/77/77A/79/79A/81
BD676/76A/78/78A/80/80A/82

MEDIUM POWER DARLINGTONS

DESCRIPTION

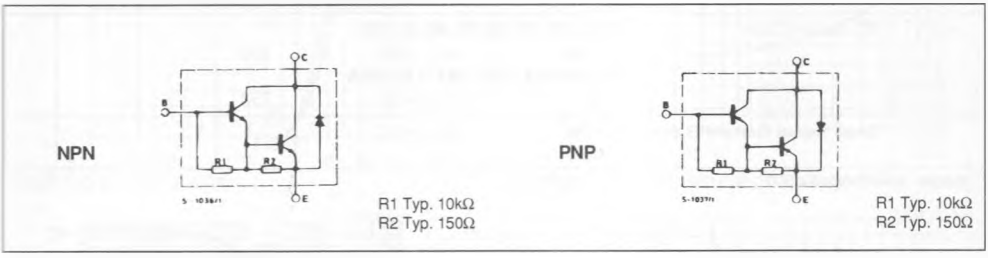
The BD675, BD675A, BD677, BD677A, BD679, BD679A and BD681 are silicon epitaxial-base NPN power transistors in monolithic Darlington configuration and are mounted in Jedec TO-126 plastic package. They are intended for use in medium power linear and switching applications.

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



TO-126

INTERNAL SCHEMATIC DIAGRAMS



ABSOLUTE MAXIMUM RATINGS

Symbol	Parameter	NPN PNP*	Value				Unit
			BD675/A BD676A	BD677/A BD677/A	BD679/A BD680A	BD681 BD682	
V_{CBO}	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_{EBO}	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 $T_{case} \leq 25°C$		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

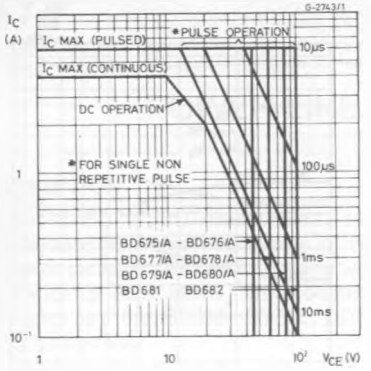
$R_{th\ j\text{-}case}$	Thermal Resistance Junction-case	Max	3.12	°C/W
$R_{th\ j\text{-}amb}$	Thermal Resistance Junction-ambient	Max	100	°C/W

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

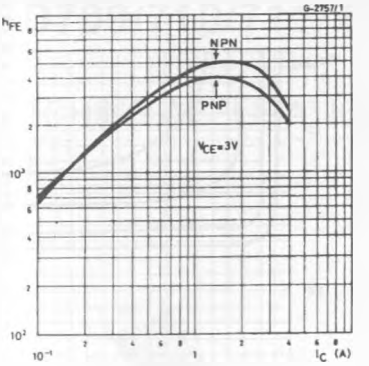
Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
I_{CBO}	Collector Cutoff Current (I_E = 0)	V_{CB} = rated V_{CBO}			200	µA
		V_{CB} = rated V_{CBO} T_{case} = 100°C			2	mA
I_{CEO}	Collector Cutoff Current (I_B = 0)	V_{CE} = half rated V_{CEO}			500	µA
I_{EBO}	Emitter Cutoff Current (I_C = 0)	V_{EB}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

* Pulsed : pulse duration = 300

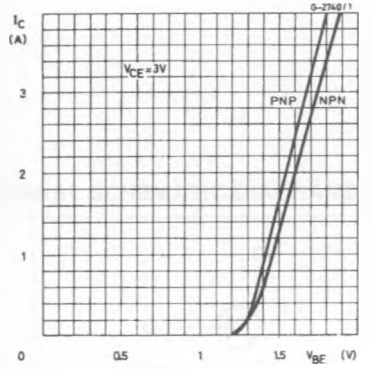
Safe Operating Areas.



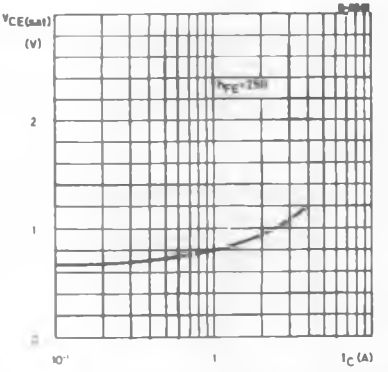
DC Current Gain.



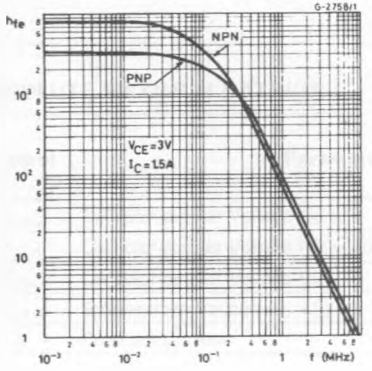
DC Transconductance.



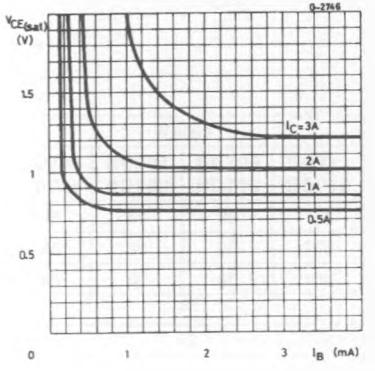
Collector-emitter Saturation Voltage.



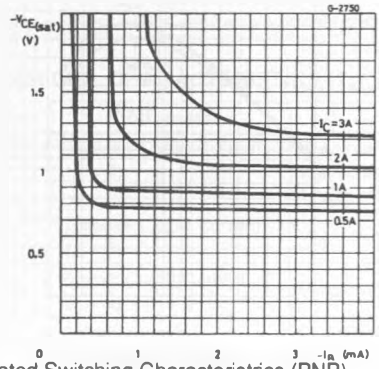
Small Signal Current gain.



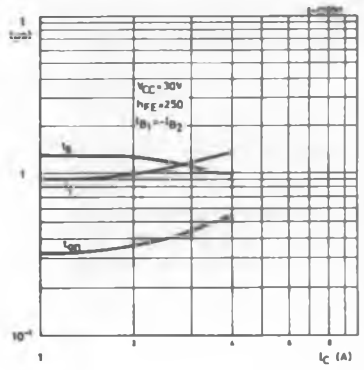
Collector-emitter Saturation Voltage (NPN types).



Collector-emitter Saturation Voltage (PNP).



Saturated Switching Characteristics (NPN).



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