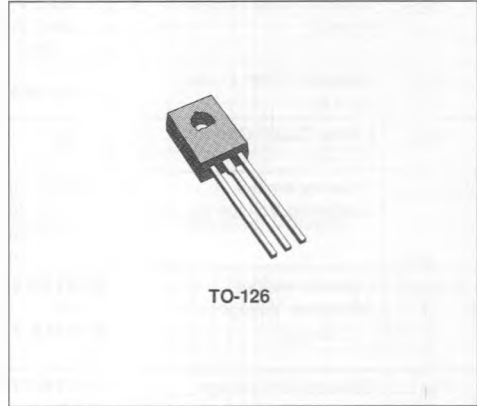


## MEDIUM POWER DARLINGTONS

### 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
$V_{CE0}$	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
$P_{T01}$	Total Power Dissipation at $T_{case} \leq 25^\circ\text{C}$		40				W
$T_{stg}$	Storage Temperature		- 65 to 150				$^\circ\text{C}$
$T_j$	Junction Temperature		150				$^\circ\text{C}$

For PNP types voltage and current values are negative.

**THERMAL DATA**

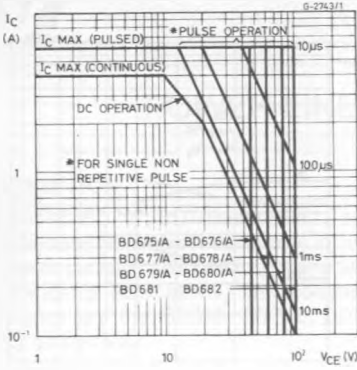
$R_{th\ j-case}$	Thermal Resistance Junction-case	Max	3.12	$^{\circ}C/W$
$R_{th\ j-amb}$	Thermal Resistance Junction-ambient	Max	100	$^{\circ}C/W$

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

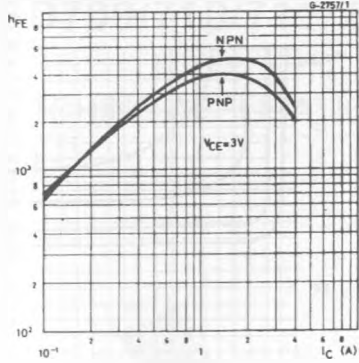
Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
$I_{CBO}$	Collector Cutoff Current ( $I_E = 0$ )	$V_{CB} = \text{rated } V_{CBO}$ $V_{CB} = \text{rated } V_{CBO}$ $T_{case} = 100^{\circ}C$			200	$\mu A$
$I_{CEO}$	Collector Cutoff Current ( $I_B = 0$ )	$V_{CE} = \text{half rated } V_{CEO}$			2	mA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

\* Pulsed : pulse duration = 300

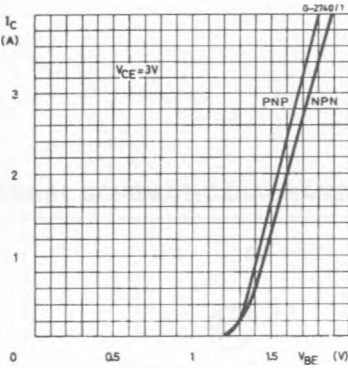
Safe Operating Areas.



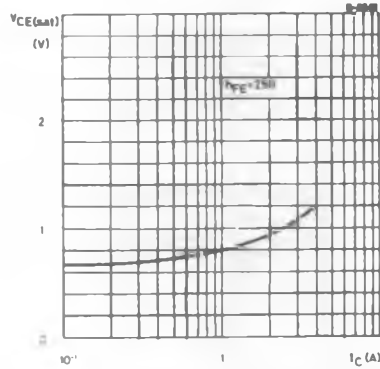
DC Current Gain.



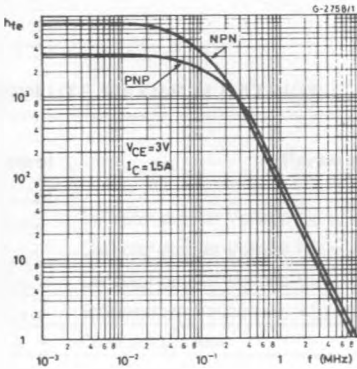
DC Transconductance.



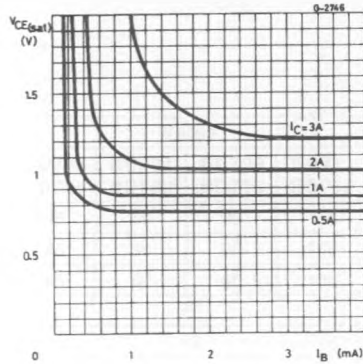
Collector-emitter Saturation Voltage.



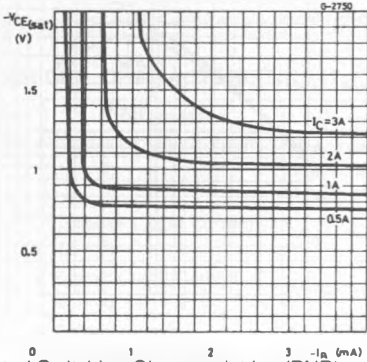
Small Signal Current gain.



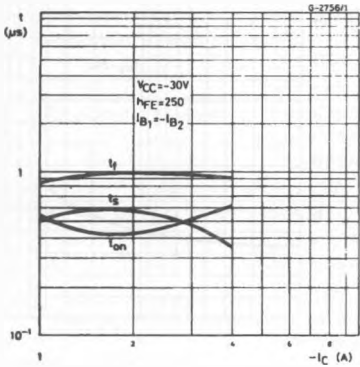
Collector-emitter Saturation Voltage (NPN types).



Collector-emitter Saturation Voltage (PNP).



saturated Switching Characteristics (PNP).



Saturated Switching Characteristics (NPN).

