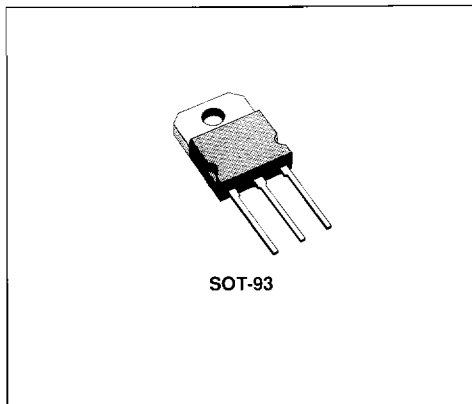


## POWER DARLINGTONS

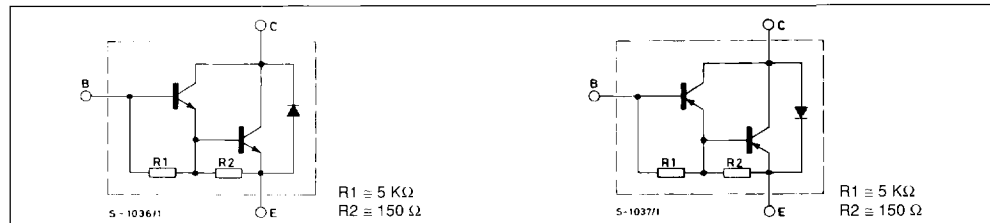
### DESCRIPTION

The BDV65, BDV65A, BDV65B, are silicon epitaxial-base NPN transistors in monolithic Darlington configuration and are mounted in SOT-93 plastic package. They are intended for use in power linear and switching applications.

The complementary PNP types are BDV64, BDV64A, BDV64B respectively.



### INTERNAL SCHEMATIC DIAGRAMS



### ABSOLUTE MAXIMUM RATINGS

Symbol	Parameter	* PNP NPN	Value			Unit
			BDV64 BDV65	BDV64A BDV65A	BDV64B BDV65B	
V <sub>CBO</sub>	Collector-base Voltage (I <sub>E</sub> = 0)		60	80	100	V
V <sub>CEO</sub>	Collector-emitter Voltage (I <sub>B</sub> = 0)		60	80	100	V
V <sub>EBO</sub>	Emitter-base Voltage (I <sub>C</sub> = 0)		5			V
I <sub>C</sub>	Collector Current		12			A
I <sub>CM</sub>	Collector Peak Current (repetitive)		20			A
I <sub>B</sub>	Base Current		0.5			A
P <sub>tot</sub>	Total Power Dissipation at T <sub>case</sub> ≤ 25 °C		125			W
T <sub>stg</sub>	Storage Temperature		- 65 to 150			°C
T <sub>j</sub>	Junction Temperature		150			°C

\* For PNP types voltage and current values are negative.

## THERMAL DATA

$R_{th(j-case)}$	Thermal Resistance Junction-case	Max	1	°C/W
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## ELECTRICAL CHARACTERISTICS ( $T_{case} = 25\text{ °C}$ unless otherwise specified)

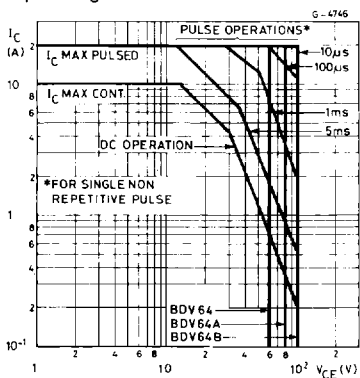
Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
$I_{CBO}$	Collector Cutoff Current ( $I_E = 0$ )	for <b>BDV64/5</b> $V_{CB} = 60\text{ V}$ for <b>BDV64A/5A</b> $V_{CB} = 80\text{ V}$ for <b>BDV64B/5B</b> $V_{CB} = 100\text{ V}$ $T_{case} = 150\text{ °C}$ for <b>BDV64/65</b> $V_{CB} = 30\text{ V}$ for <b>BDV64A/5A</b> $V_{CB} = 40\text{ V}$ for <b>BDV64B/5B</b> $V_{CB} = 50\text{ V}$			400 400 400 2 2 2	$\mu\text{A}$ $\mu\text{A}$ $\mu\text{A}$ mA mA mA
$I_{CEO}$	Collector Cutoff Current ( $I_B = 0$ )	for <b>BDV64/65</b> $V_{CE} = 30\text{ V}$ for <b>BDV64A/5A</b> $V_{CE} = 40\text{ V}$ for <b>BDV64B/5B</b> $V_{CE} = 50\text{ V}$			1 1 1	mA mA mA
$I_{EBO}$	Emitter Cutoff Current ( $I_C = 0$ )	$V_{EBO} = 5\text{ V}$			5	mA
$V_{CE0(sus)}^*$	Collector-emitter Sustaining Voltage ( $I_B = 0$ )	$I_C = 30\text{ mA}$ for <b>BDV64/65</b> for <b>BDV64A/5A</b> for <b>BDV64B/5B</b>	60 80 100			V V V
$V_{CE(sat)}^*$	Collector-emitter Saturation Voltage	$I_C = 5\text{ A}$ $I_B = 20\text{ mA}$			2	V
$V_{BE}^*$	Base-emitter Voltage	$I_C = 5\text{ A}$ $V_{CE} = 4\text{ V}$			2.5	V
$h_{FE}^*$	DC Current Gain	$I_C = 1\text{ A}$ $V_{CE} = 4\text{ V}$ $I_C = 5\text{ A}$ $V_{CE} = 4\text{ V}$ $I_C = 10\text{ A}$ $V_{CE} = 4\text{ V}$	1000	2500 500		
$V_F$	Parallel Diode Forward Voltage	$I_F = 5\text{ A}$		1.2		V
$h_{fe}$	Small Signal Current Gain	$I_C = 5\text{ A}$ $V_{CE} = 4\text{ V}$ $f = 1\text{ MHz}$		60		
$C_{CBO}$	Collector-base Capacitance	$V_{CB} = 10\text{ V}$ $I_E = 0$ $f = 1\text{ MHz}$		100		pF
$t_{on}$	Turn-on Time	$I_C = 5\text{ A}$ $I_{B1} = 20\text{ mA}$ $I_{B2} = 20\text{ A}$ $V_{CC} = 16\text{ V}$		0.5		$\mu\text{s}$
$t_s$	Storage Time			1.1** 1.3		$\mu\text{s}$ $\mu\text{s}$
$t_f$	Fall Time			2.5** 1.0		$\mu\text{s}$ $\mu\text{s}$

\* Pulsed : pulse duration = 300 $\mu\text{s}$  duty cycle = 1.5%.

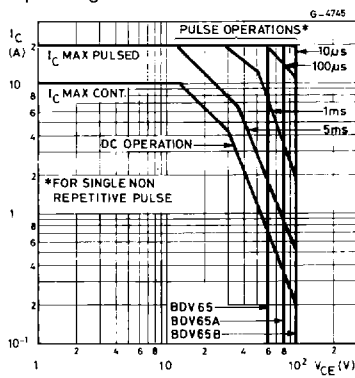
\*\* For PNP types,

For PNP types voltage and current values are negative.

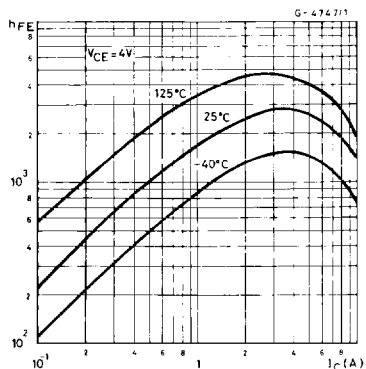
Safe Operating Areas.



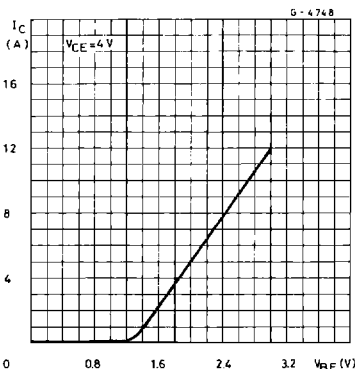
Safe Operating Areas.



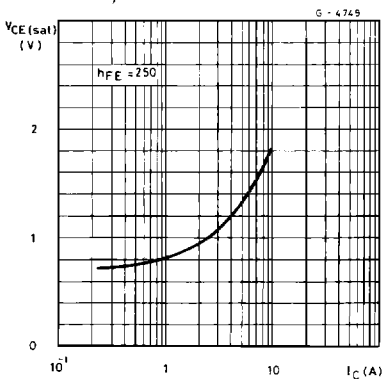
DC Current Gain (BDV64 series).



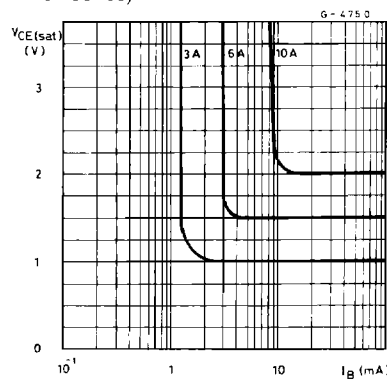
DC Transconductance (BDV64 series).



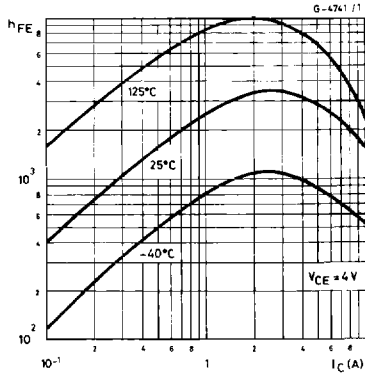
Collector-emitter Saturation Voltage (BDV64 series).



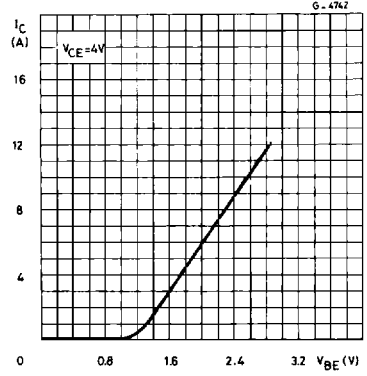
Collector-emitter Saturation Voltage (BDV64 series).



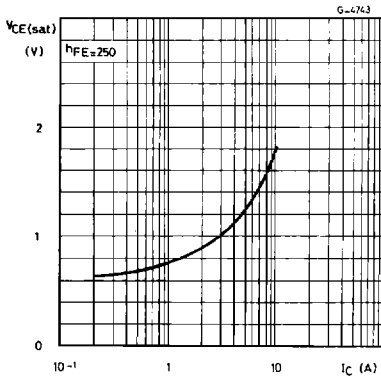
DC Current Gain (BDV65 series).



DC Transconductance (BDV65 series).



Collector-emitter Saturation Voltage (BDV65 series).



Collector-emitter Saturation Voltage (BDV65 series).

