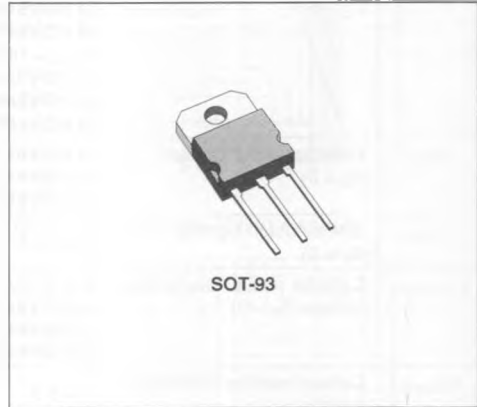


## POWER DARLINGTONS

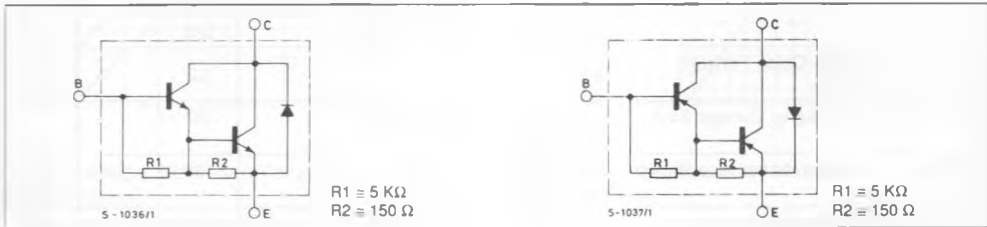
### DESCRIPTION

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	
$V_{CBO}$	Collector-base Voltage ( $I_E = 0$ )		60	80	100	V
$V_{CEO}$	Collector-emitter Voltage ( $I_B = 0$ )		60	80	100	V
$V_{EBO}$	Emitter-base Voltage ( $I_C = 0$ )		5			V
$I_C$	Collector Current		12			A
$I_{CM}$	Collector Peak Current (repetitive)		20			A
$I_B$	Base Current		0.5			A
$P_{Tot}$	Total Power Dissipation at $T_{case} \leq 25\text{ }^\circ\text{C}$		125			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	1	$^{\circ}C/W$
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ELECTRICAL CHARACTERISTICS ( $T_{case} = 25^{\circ}C$  unless otherwise specified)

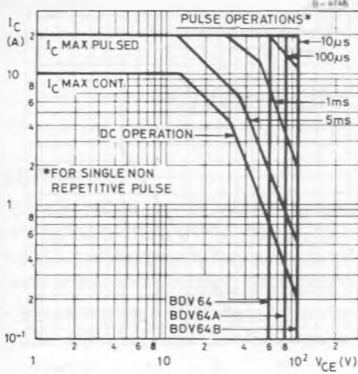
Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit	
$I_{CBO}$	Collector Cutoff Current ( $I_E = 0$ )	for <b>BDV64/5</b> $V_{CB} = 60 V$			400	$\mu A$	
		for <b>BDV64A/5A</b> $V_{CB} = 80 V$			400	$\mu A$	
		for <b>BDV64B/5B</b> $V_{CB} = 100 V$			400	$\mu A$	
		$T_{case} = 150^{\circ}C$					
		for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

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

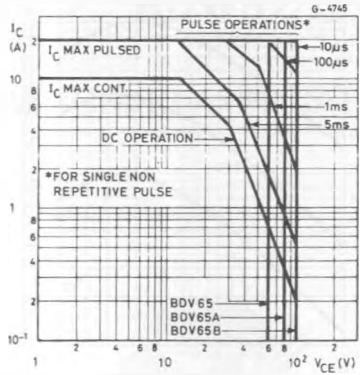
\*\* For PNP types,

For PNP types voltage and current values are negative.

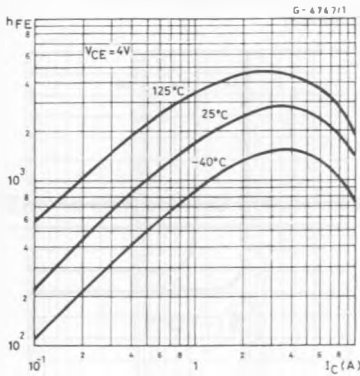
Safe Operating Areas.



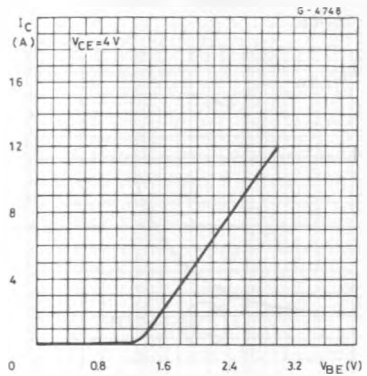
Safe Operating Areas.



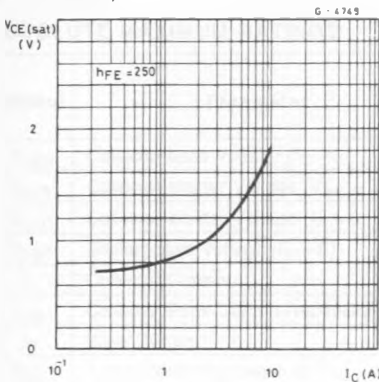
DC Current Gain (BDV64 series).



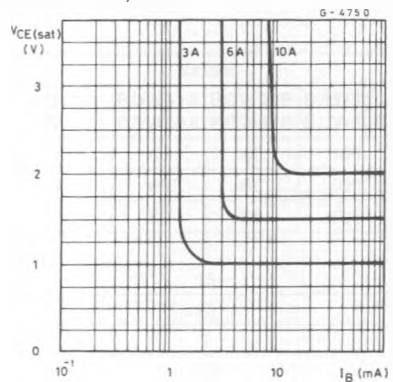
DC Transconductance (BDV64 series).



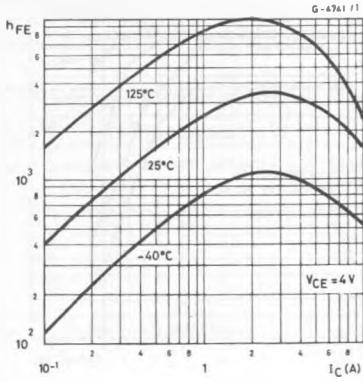
Collector-emitter Saturation Voltage (BDV64 series).



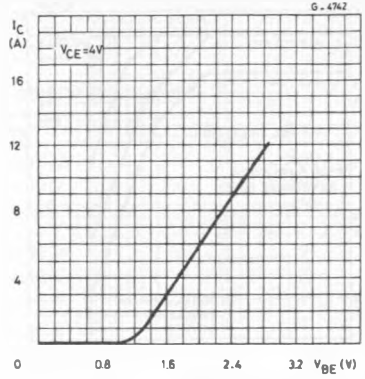
Collector-emitter Saturation Voltage (BDV64 series).



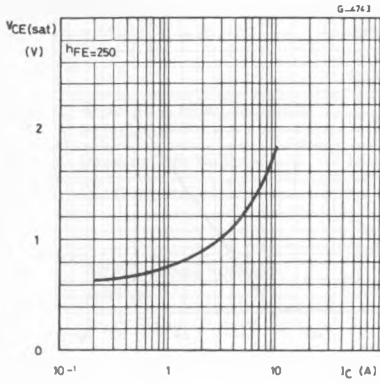
DC Current Gain (BDV65 series).



DC Transconductance (BDV65 series).



Collector-emitter Saturation Voltage (BDV65 series).



Collector-emitter Saturation Voltage (BDV65 series).

