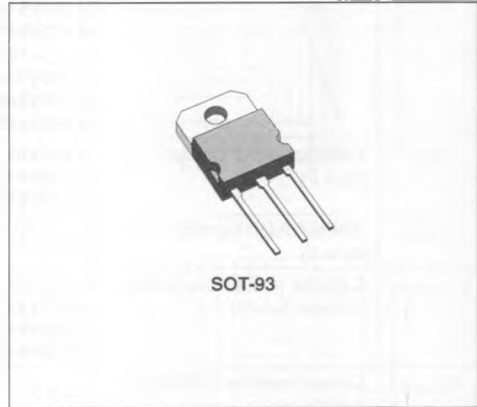


POWER DARLINGTONS

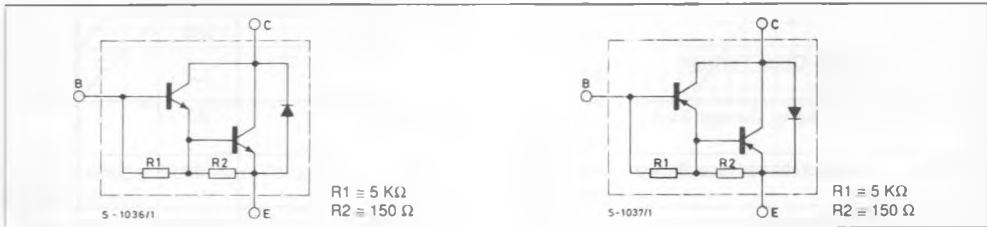
DESCRIPTION

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 $T_{case} \leq 25^\circ\text{C}$		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	$^{\circ}C/W$
------------------	----------------------------------	-----	---	---------------

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

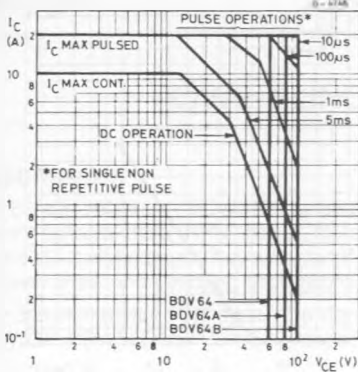
Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
I_{CBO}	Collector Cutoff Current ($I_E = 0$)	for BDV64/5 $V_{CB} = 60 V$ for BDV64A/5A $V_{CB} = 80 V$ for BDV64B/5B $V_{CB} = 100 V$ $T_{case} = 150^{\circ}C$ for BDV64/65 $V_{CB} = 30 V$ for BDV64A/5A $V_{CB} = 40 V$ for BDV64B/5B $V_{CB} = 50 V$			400 400 400 2 2 2	μA μA μA mA mA mA
I_{CEO}	Collector Cutoff Current ($I_B = 0$)	for BDV64/65 $V_{CE} = 30 V$ for BDV64A/5A $V_{CE} = 40 V$ for BDV64B/5B $V_{CE} = 50 V$			1 1 1	mA mA 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 BDV64/65 for BDV64A/5A for BDV64B/5B	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	$I_C = 1 A$ $V_{CE} = 4 V$ $I_C = 5 A$ $V_{CE} = 4 V$ $I_C = 10 A$ $V_{CE} = 4 V$	1000	2500 500		
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			0.5		μs
t_s	Storage Time	$I_C = 5 A$ $I_{B1} = 20 mA$		1.1** 1.3		μs μs
t_f	Fall Time	$I_{B2} = 20 A$ $V_{CC} = 16 V$		2.5** 1.0		μs μs

* Pulsed : pulse duration = 300 μs duty cycle = 1.5%.

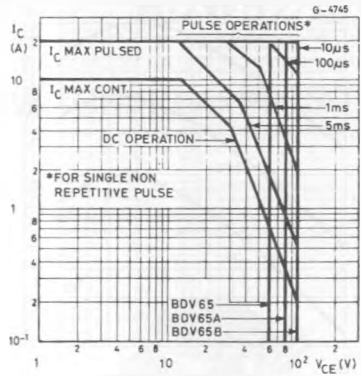
** For PNP types,

For PNP types voltage and current values are negative.

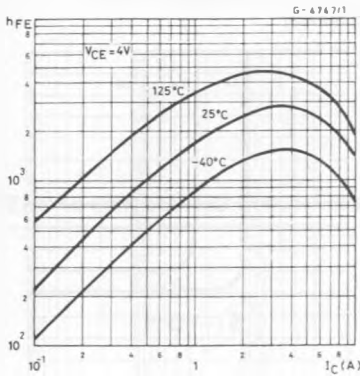
Safe Operating Areas.



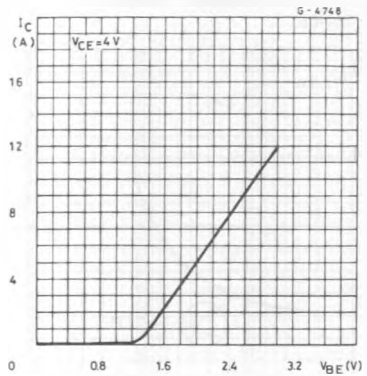
Safe Operating Areas.



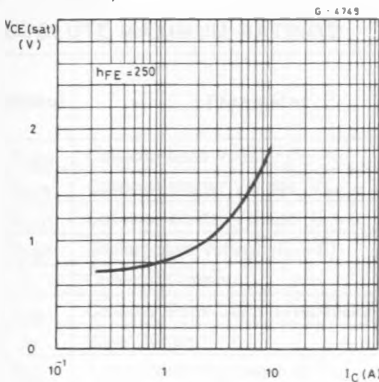
DC Current Gain (BDV64 series).



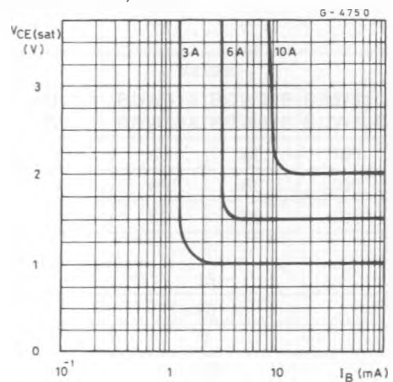
DC Transconductance (BDV64 series).



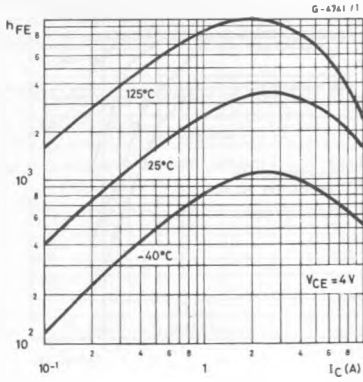
Collector-emitter Saturation Voltage (BDV64 series).



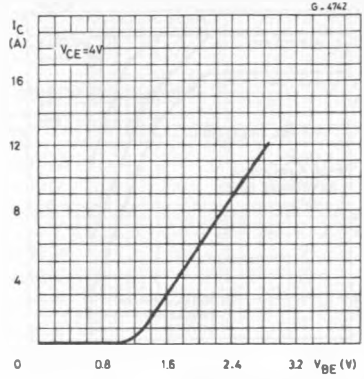
Collector-emitter Saturation Voltage (BDV64 series).



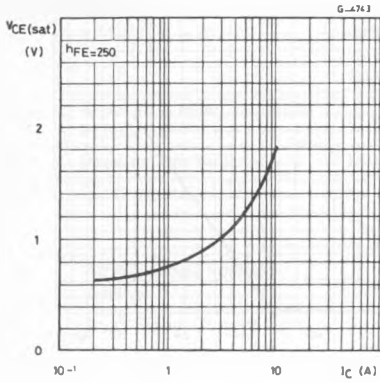
DC Current Gain (BDV65 series).



DC Transconductance (BDV65 series).



Collector-emitter Saturation Voltage (BDV65 series).



Collector-emitter Saturation Voltage (BDV65 series).

