SGS-THOMSON
MICROELECTRONICS

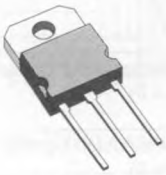
BDV64/A/B
BDV65/A/B

POWER DARLINGTONS

DESCRIPTION

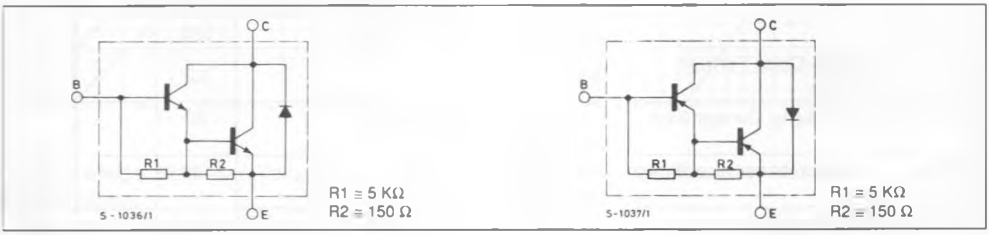
The BDV65, BDV65A, BDV65B, are silicon epitaxial-base NPN transistors in monolithic Darlington configuration and are mounted in SOT-93 plastic package. They are intended for use in power linear and switching applications.

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



SOT-93

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 $T_{case} \leq 25$ °C		125			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

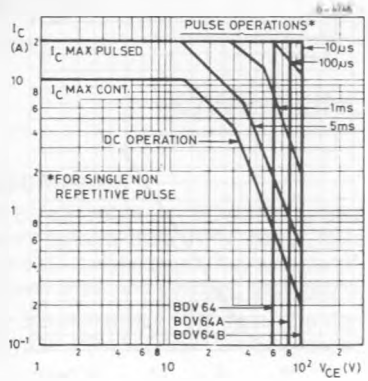
$R_{th\ j\text{-}case}$	Thermal Resistance Junction-case	Max	1	°C/W

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)	for **BDV64/5** V_{CB} = 60 V			400	µA
		for **BDV64A/5A** V_{CB} = 80 V			400	µA
		for **BDV64B/5B** V_{CB} = 100 V			400	µA
		T_{case} = 150 °C				
		for **BDV64/65** V_{CB} = 30 V			2	mA
		for **BDV64A/5A** V_{CB} = 40 V			2	mA
		for **BDV64B/5B** V_{CB} = 50 V			2	mA
I_{CEO}	Collector Cutoff Current (I_B = 0)	for **BDV64/65** V_{CE} = 30 V			1	mA
		for **BDV64A/5A** V_{CE} = 40 V			1	mA
		for **BDV64B/5B** 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 **BDV64/65**	60			V
		for **BDV64A/5A**	80			V
		for **BDV64B/5B**	100			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		2500		
		I_C = 5 A V_{CE} = 4 V	1000			
		I_C = 10 A V_{CE} = 4 V		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	I_C = 5 A I_{B1} = 20 mA I_{B2} = 20 A V_{CC} = 16 V		0.5		µs
t_s	Storage Time			1.1**		µs
				1.3		µs
t_f	Fall Time			2.5**		µs
				1.0		µs

* Pulsed : pulse duration = 300µs duty cycle = 1.5%.
** For PNP types.
For PNP types voltage and current values are negative.

Safe Operating Areas.



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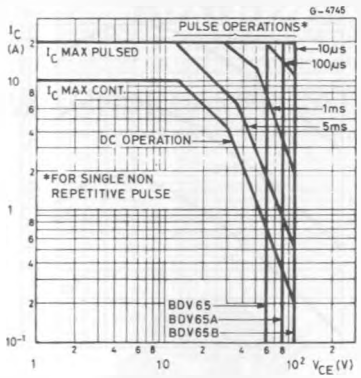
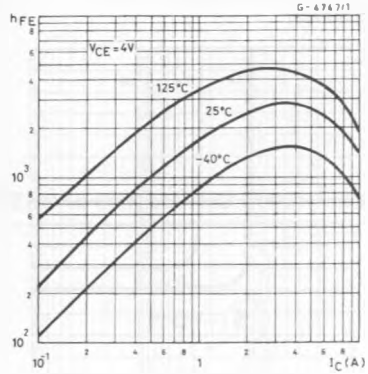
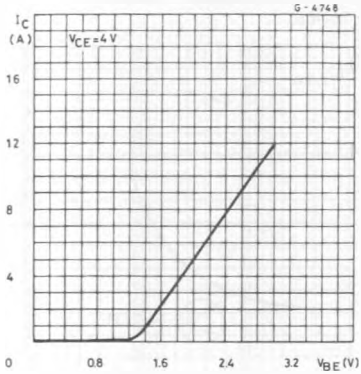


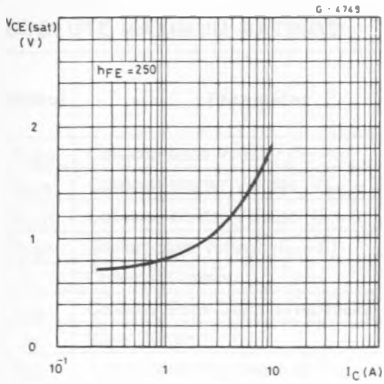
DC Current Gain (BDV64 series).



DC Transconductance (BDV64 series).



Collector-emitter Saturation Voltage (BDV64 series).



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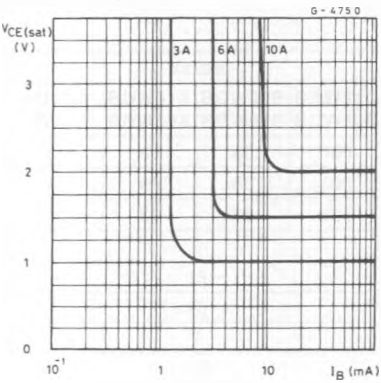

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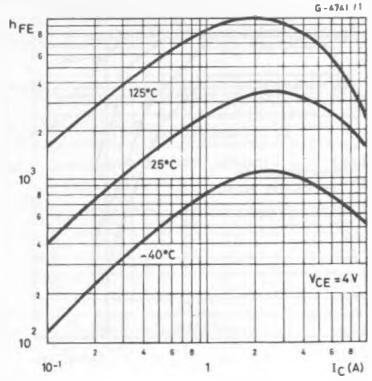
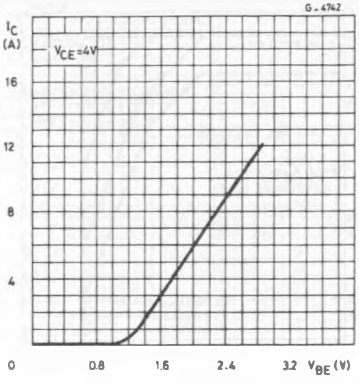


DC Transconductance (BDV65 series).



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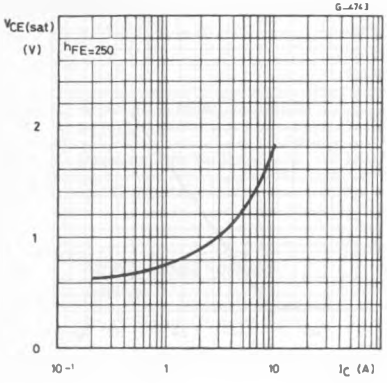

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