BDW 94
BDW 94A
BDW 94B
BDW 94C

EPITAXIAL-BASE PNP

PRELIMINARY DATA

POWER DARLINGTONS

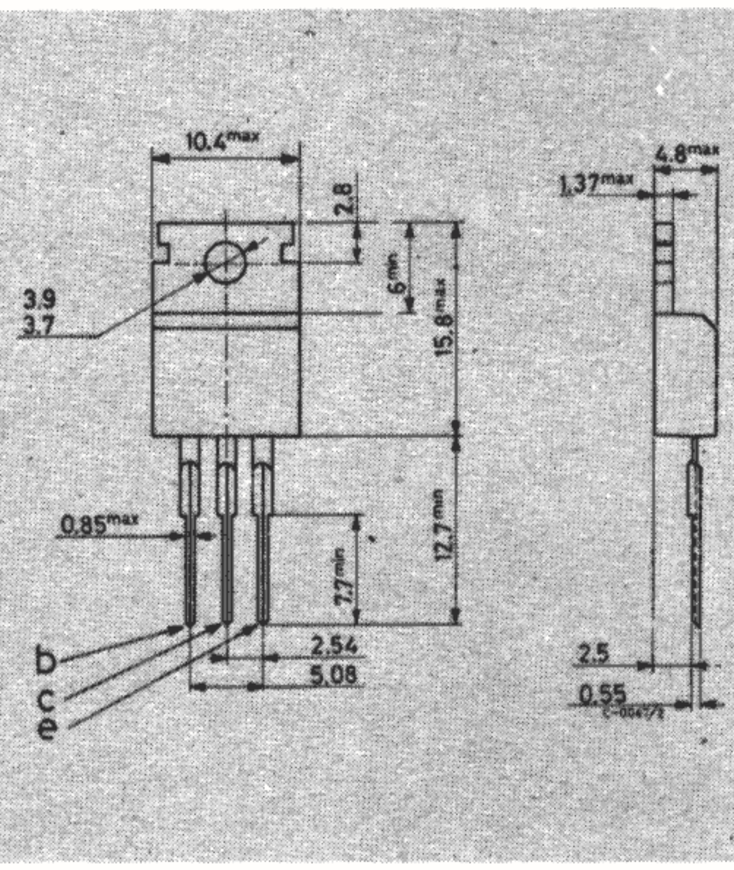
The BDW 94, BDW 94A, BDW 94B and BDW 94C are silicon epitaxial-base PNP transistors in monolithic Darlington configuration and are mounted in Jedec TO-220 plastic package. They are intended for use in power linear and switching applications. The complementary NPN types are the BDW 93, BDW 93A, BDW 93B and BDW 93C respectively.

ABSOLUTE MAXIMUM RATINGS		BDW94	BDW94A	BDW94B	BDW94C
V_{CBO}	Collector-base voltage ($I_E = 0$)	-45V	-60V	-80V	-100V
V_{CEO}	Collector-emitter voltage ($I_B = 0$)	-45V	-60V	-80V	-100V
I_C	Collector current	-12A			
I_{CM}	Collector peak current	-15A			
I_B	Base current	-0.2A			
P_{tot}	Total power dissipation at $T_{case} \leqslant 25°C$	80W			
T_{stg}	Storage temperature	-65 to 150°C			
T_j	Junction temperature	150°C			

MECHANICAL DATA

Dimensions in mm

Collector connected to tab



TO-220

THERMAL DATA

$R_{th\ j\text{-}case}$	Thermal resistance junction-case	max	1.56	°C/W

ELECTRICAL CHARACTERISTICS (T_{case} = 25°C unless otherwise specified)

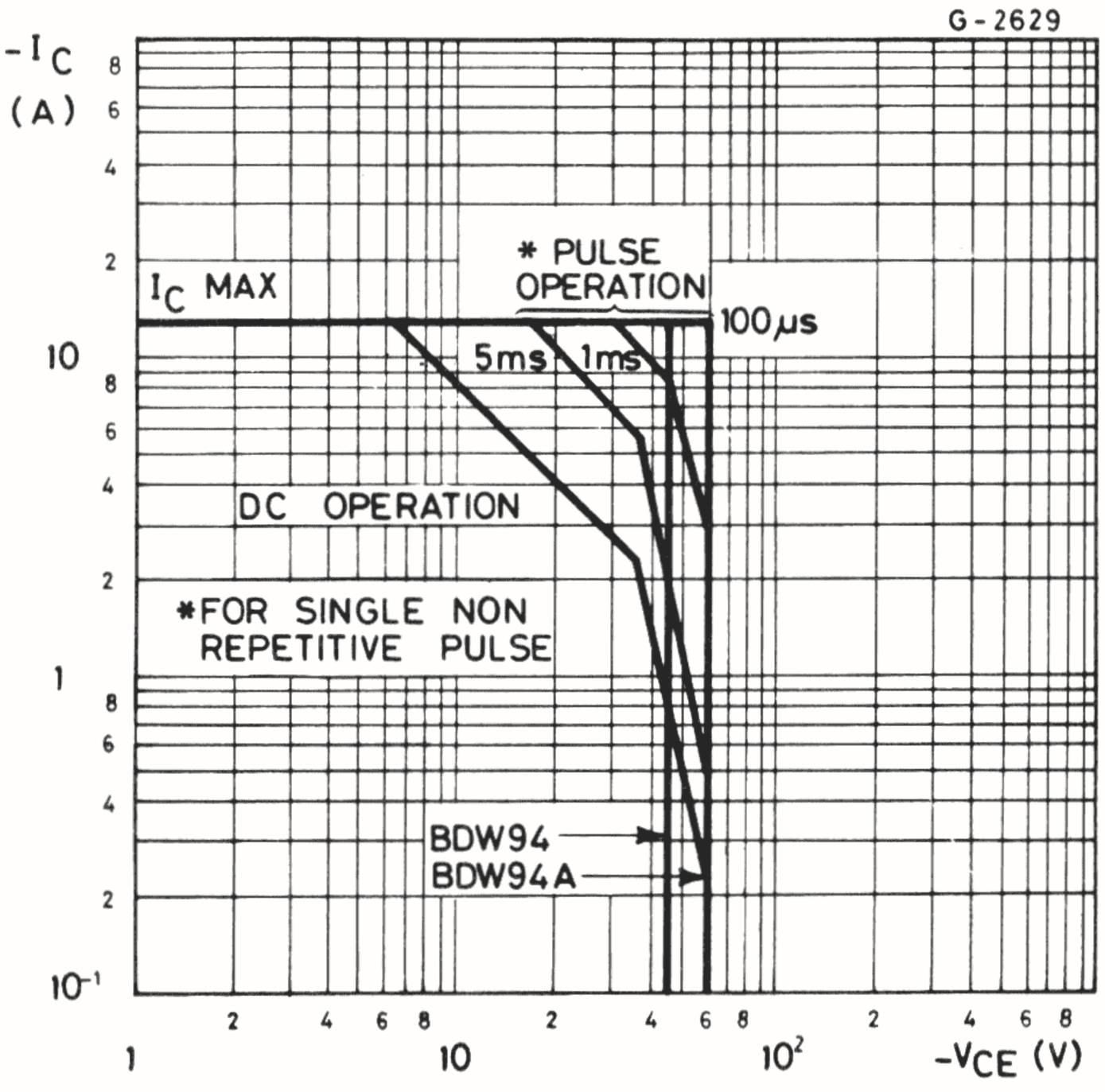
Parameter		Test conditions		Min.	Typ.	Max.	Unit
I_{CBO}	Collector cutoff current ($I_E = 0$)	for **BDW94**	V_{CB} = -45V			-100	μA
		for **BDW94A**	V_{CB} = -60V			-100	μA
		for **BDW94B**	V_{CB} = -80V			-100	μA
		for **BDW94C**	V_{CB} = -100V			-100	μA
		T_{case} = 150°C					
		for **BDW94**	V_{CB} = -45V			-5	mA
		for **BDW94A**	V_{CB} = -60V			-5	mA
		for **BDW94B**	V_{CB} = -80V			-5	mA
		for **BDW94C**	V_{CB} = -100V			-5	mA
I_{CEO}	Collector cutoff current ($I_B = 0$)	for **BDW94**	V_{CE} = -40V			-1	mA
		for **BDW94A**	V_{CE} = -60V			-1	mA
		for **BDW94B**	V_{CE} = -80V			-1	mA
		for **BDW94C**	V_{CE} = -80V			-1	mA
I_{EBO}	Emitter cutoff current ($I_C = 0$)	V_{EB} = -5V				-2	mA
$V_{CEO\ (sus)}$*	Collector-emitter sustaining voltage ($I_B = 0$)	I_C = -100mA					
		for **BDW94**		-45			V
		for **BDW94A**		-60			V
		for **BDW94B**		-80			V
		for **BDW94C**		-100			V
$V_{CE\ (sat)}$*	Collector-emitter saturation voltage	I_C = -5A	I_B = -20mA			-2	V
		I_C = -10A	I_B = -100mA			-3	V
$V_{BE\ (sat)}$*	Base-emitter saturation voltage	I_C = -5A	I_B = -20mA			-2.5	V
		I_C = -10A	I_B = -100mA			-4	V
h_{FE}*	DC current gain	I_C = -3A	V_{CE} = -3V	1000			—
		I_C = -5A	V_{CE} = -3V	750		20000	—
		I_C = -10A	V_{CE} = -3V	100			—
V_F*	Parallel-diode forward voltage	I_F = 5A			1.3	2	V
		I_F = 10A			1.8	4	V
h_{fe}	Small signal current gain	I_C = -1A	V_{CE} = -10V				
		f = 1 MHz		20			—

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

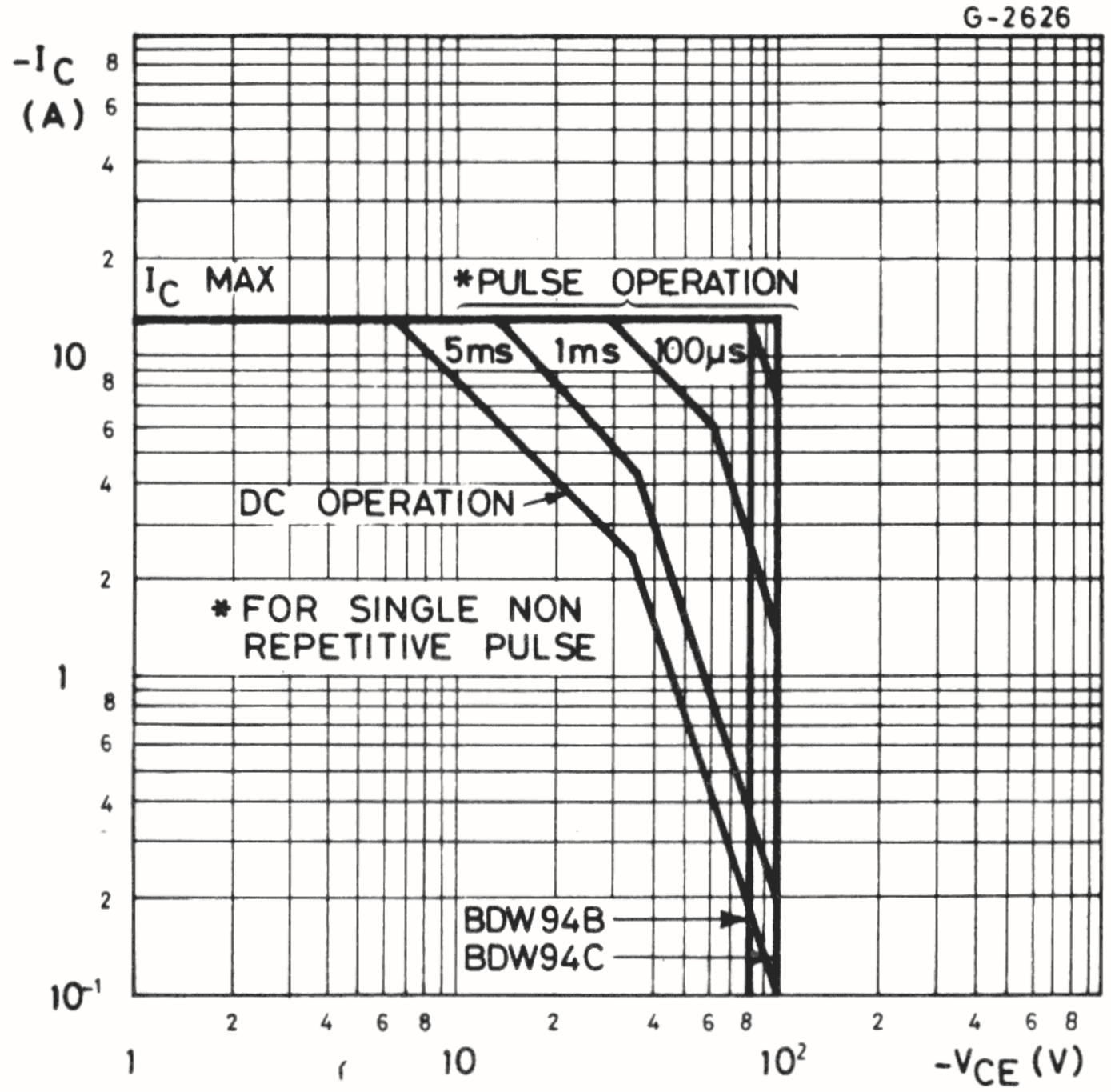
BDW 94
BDW 94A
BDW 94B
BDW 94C

SGS ATES

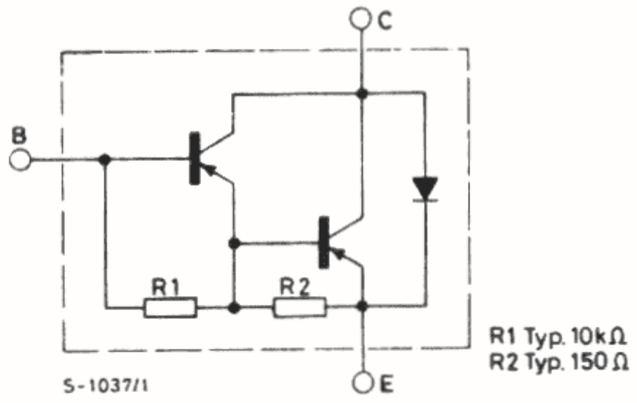
Safe operating areas (for **BDW94** and **BDW94A**)



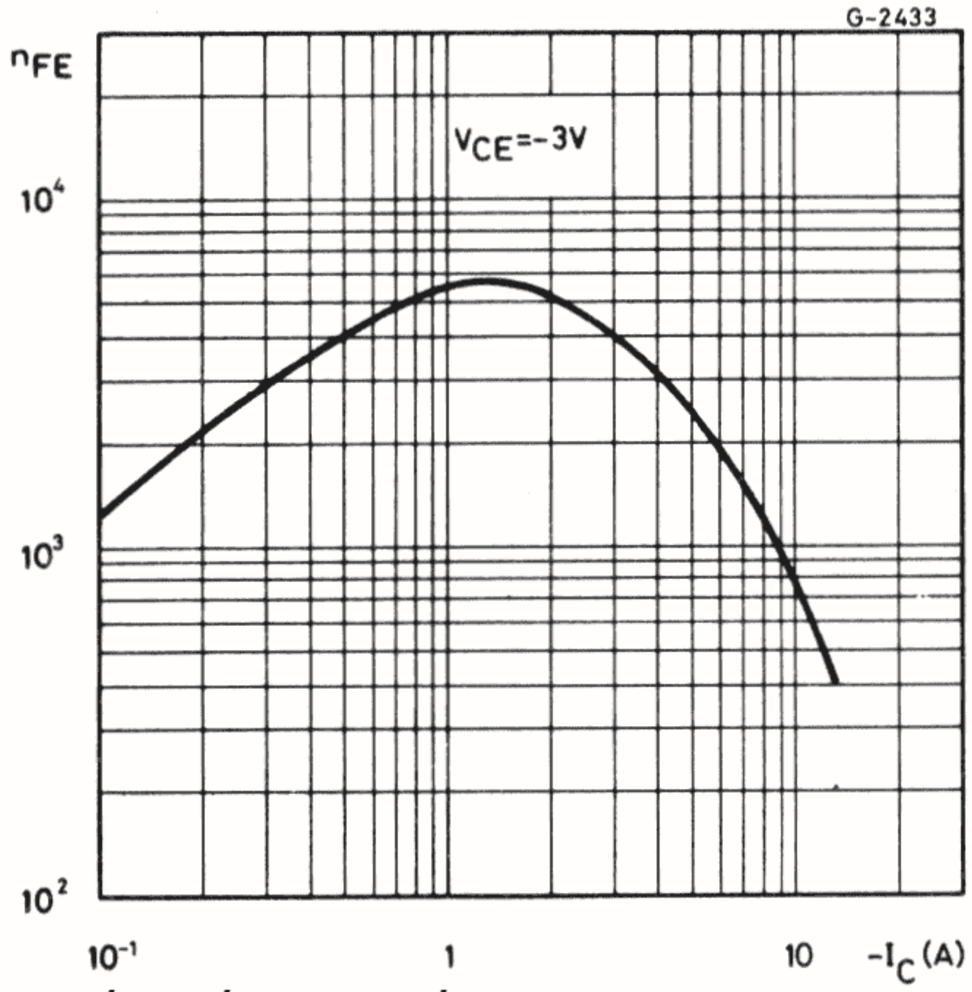
Safe operating areas (for **BDW94B** and **BDW94C**)



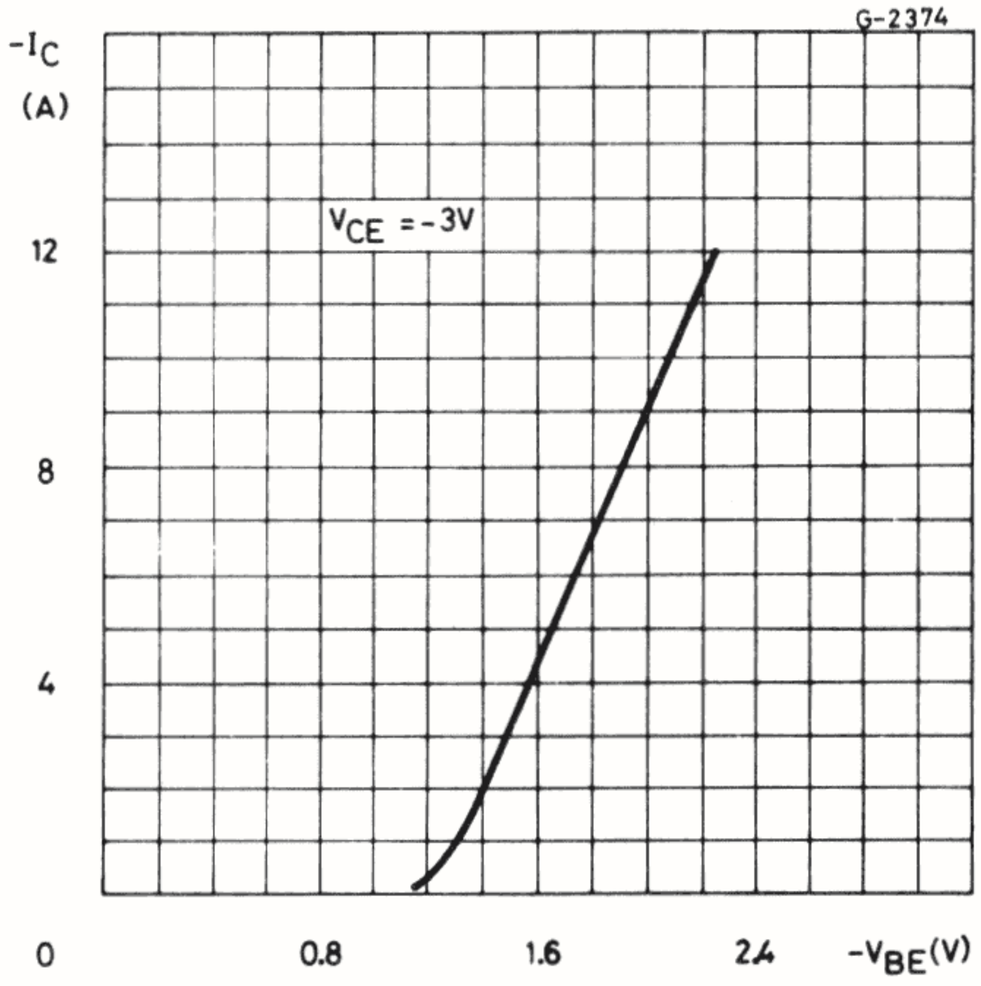
Internal circuit diagram



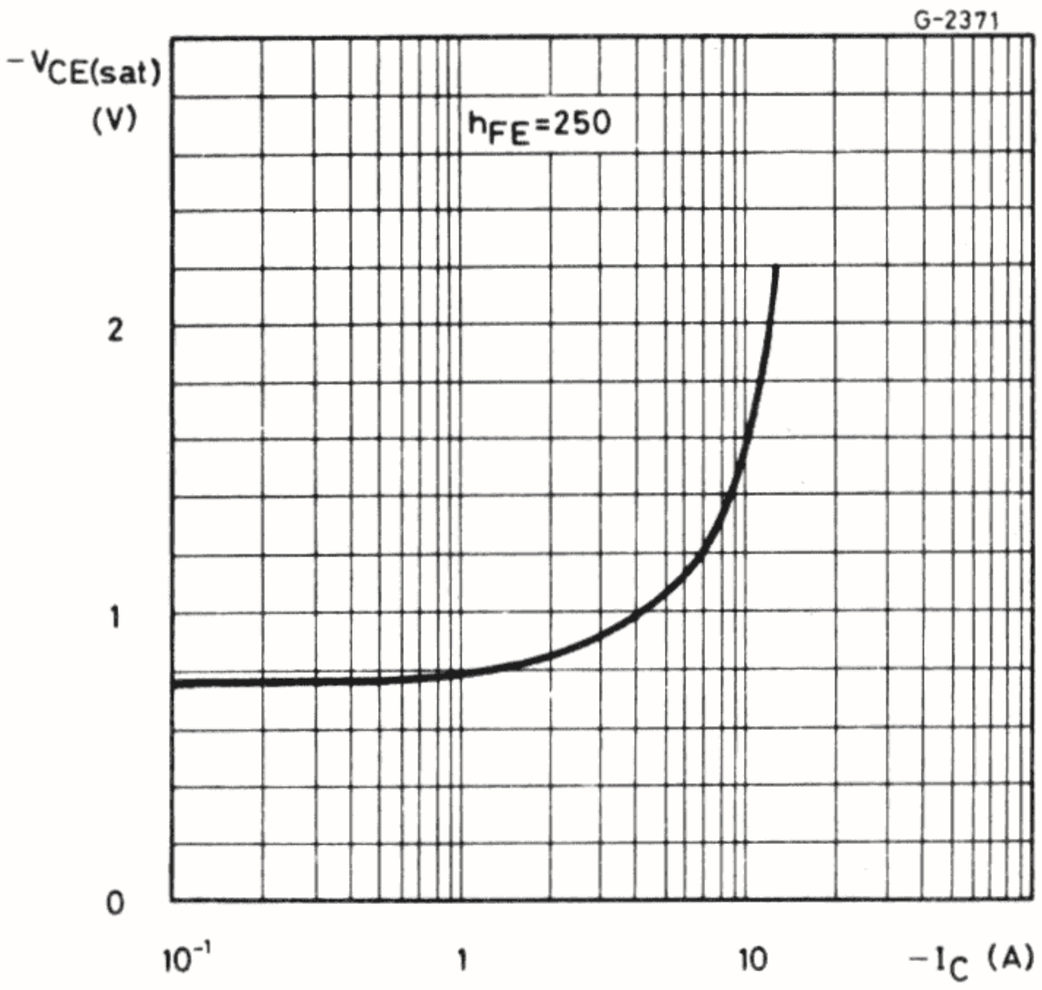
DC current gain



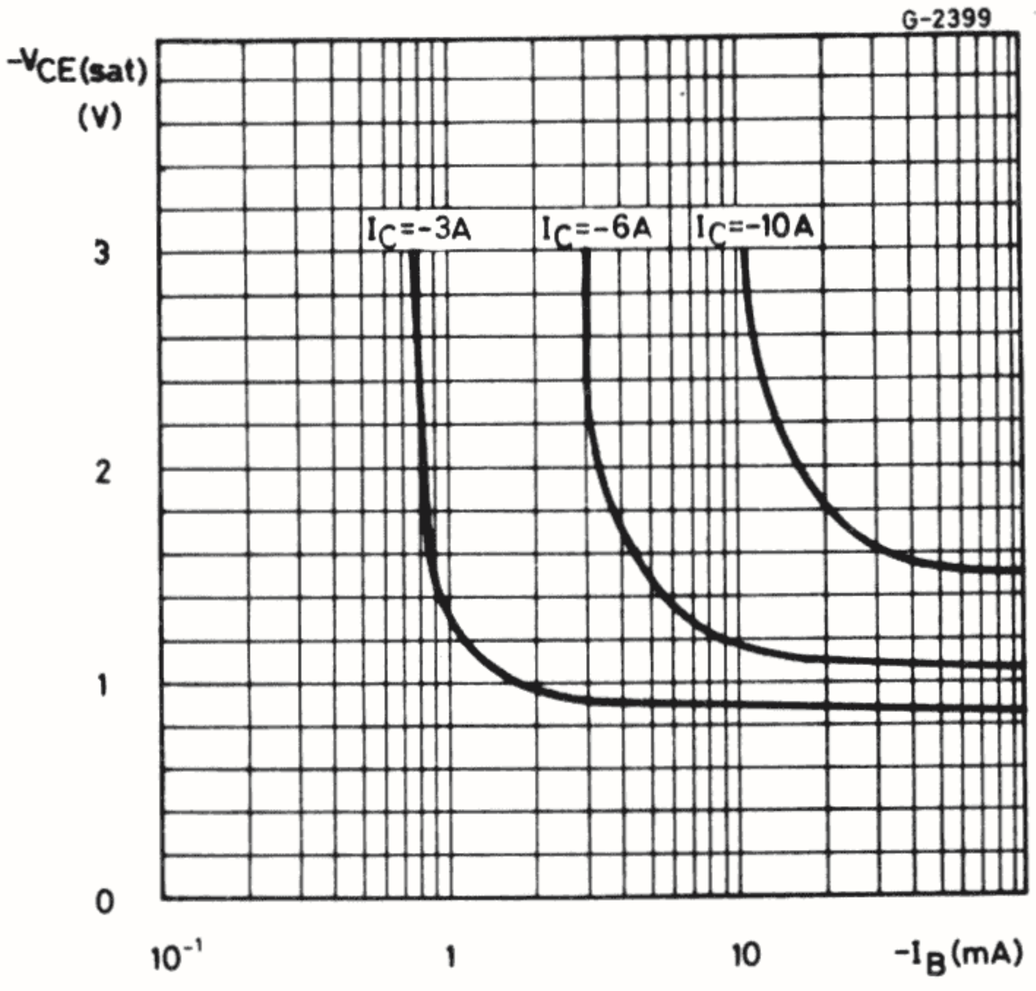
DC transconductance



Collector-emitter saturation voltage



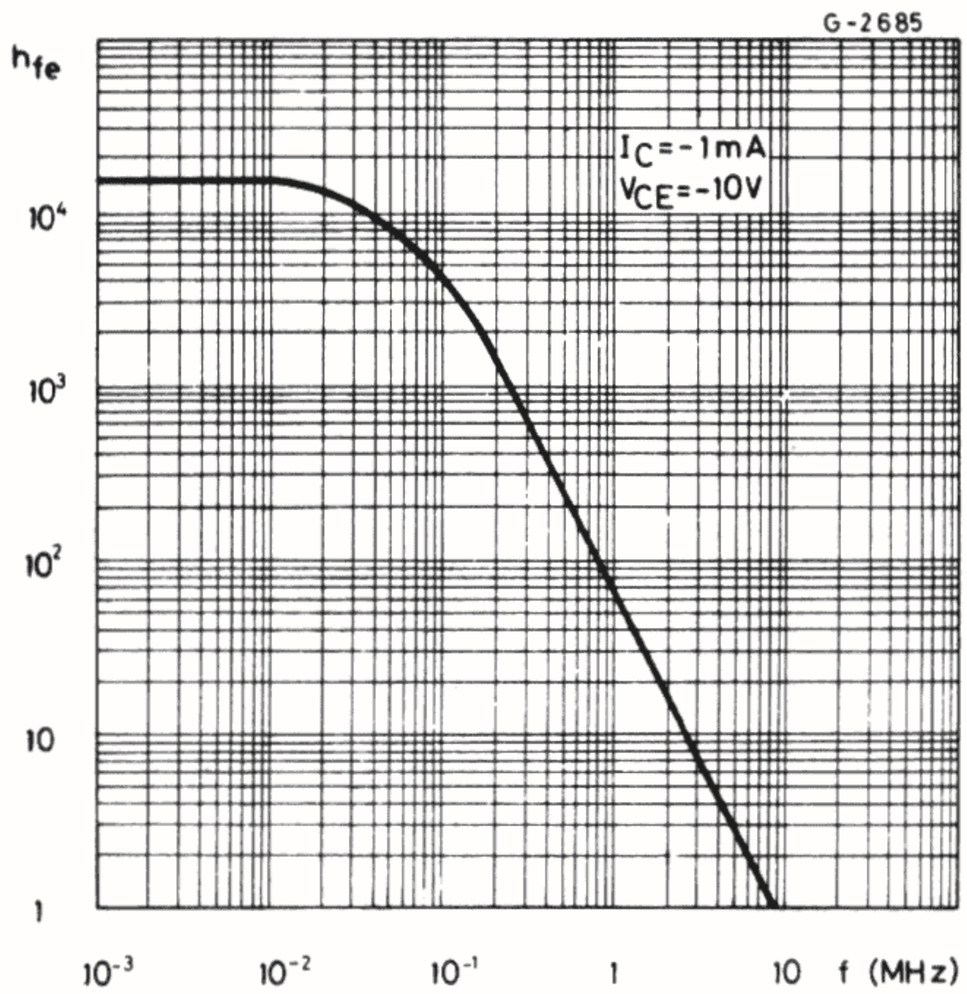
Collector-emitter saturation voltage



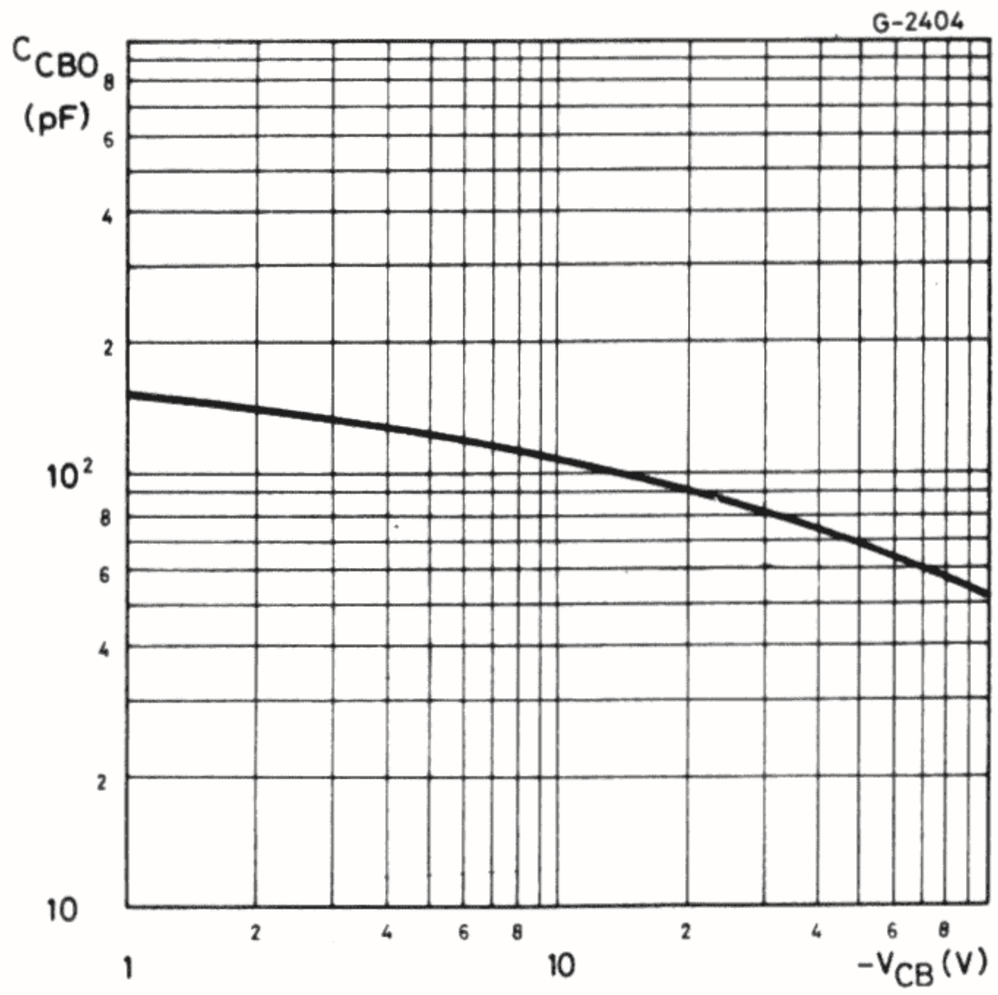
BDW 94
BDW 94A
BDW 94B
BDW 94C

SGS ATES

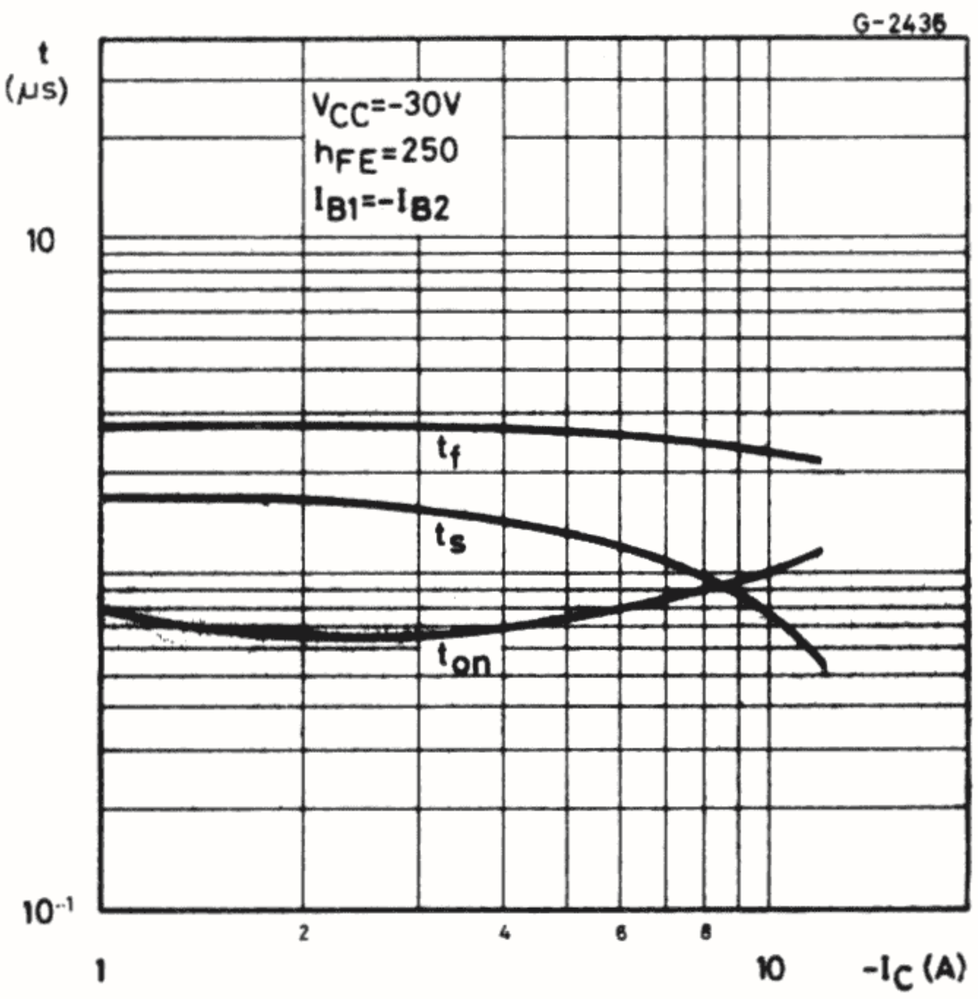
Small signal current gain



Collector-base capacitance



Saturated switching characteristics



Power rating chart