Ordering number: EN 2146B

SANYO

No.2146B

2SC3705

NPN Epitaxial Planar Silicon Darlington Transistor

Printer Driver Applications

Applications

· Switching of L load (motor drivers, printer drivers, relay drivers).

Features

· High DC current gain.
· Large current capacity and wide ASO.
· Contains a Zener diode across collector and base.

Absolute Maximum Ratings at Ta = 25°C

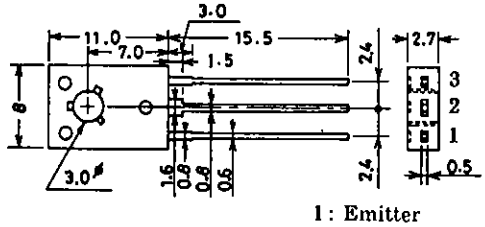
				unit
Collector-to-Base Voltage	V_{CBO}	With Zener diode (60±10V)	50	V
Collector-to-Emitter Voltage	V_{CEO}	With Zener diode (60±10V)	50	V
Emitter-to-Base Voltage	V_{EBO}		6	V
Collector Current	I_C		1.2	A
Collector Current (Pulse)	I_{CP}		2.5	A
Base Current	I_B		0.25	A
Collector Dissipation	P_C		1	W
		Tc = 25°C	10	W
Junction Temperature	Tj		150	°C
Storage Temperature	Tstg		−55 to +150	°C

Electrical Characteristics at Ta = 25°C

			min	typ	max	unit
Collector Cutoff Current	I_{CBO}	V_{CB} = 40V, I_E = 0			19	μA
Emitter Cutoff Current	I_{EBO}	V_{EB} = 5V, I_C = 0			10	μA
DC Current Gain	h_{FE}	V_{CE} = 5V, I_C = 0.5A	1000	4000		
Gain-Bandwidth Product	f_T	V_{CE} = 5V, I_C = 0.5A		180		MHz
Inductive Load Handling Capability	Es/b	L = 100mH, R_{BE} = 100Ω	15			mJ
C-E Saturation Voltage	$V_{CE(sat)}$	I_C = 500mA, I_B = 2mA		1.0	1.5	V
B-E Saturation Voltage	$V_{BE(sat)}$	I_C = 500mA, I_B = 2mA			2.0	V
C-B Breakdown Voltage	$V_{(BR)CBO}$	I_C = 0.1mA, I_E = 0	50	60	70	V
C-E Breakdown Voltage	$V_{(BR)CEO}$	I_C = 1mA, R_{BE} = ∞	50	60	70	V
Rise Time	t_{on}	See specified Test Circuit.		0.2		μs
Storage Time	t_{stg}	〃		2.2		μs
Fall Time	t_f	〃		0.4		μs

Package Dimensions 2009B

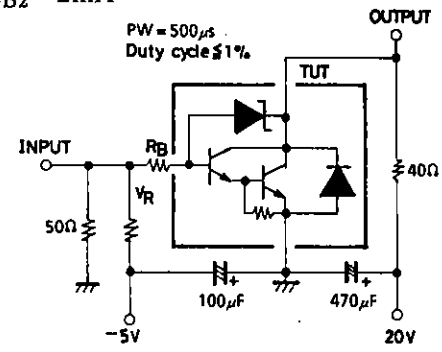
(unit: mm)



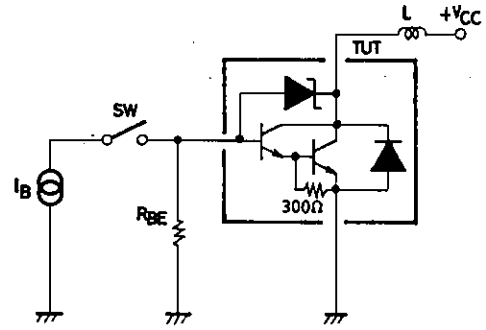
JEDEC: TO-126

1: Emitter
2: Collector
3: Base

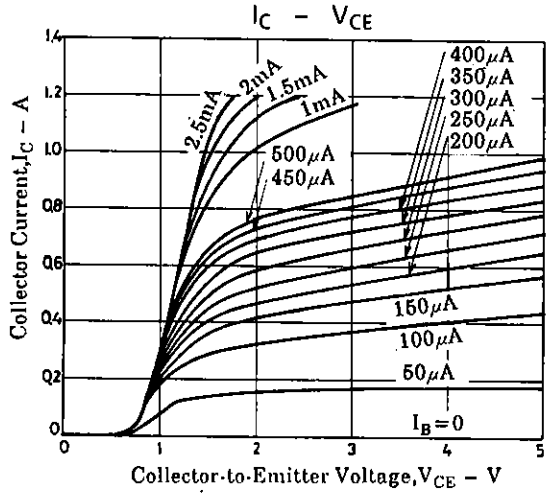
Switching Time Test Circuit
$I_{B1} = -I_{B2} = 2mA$



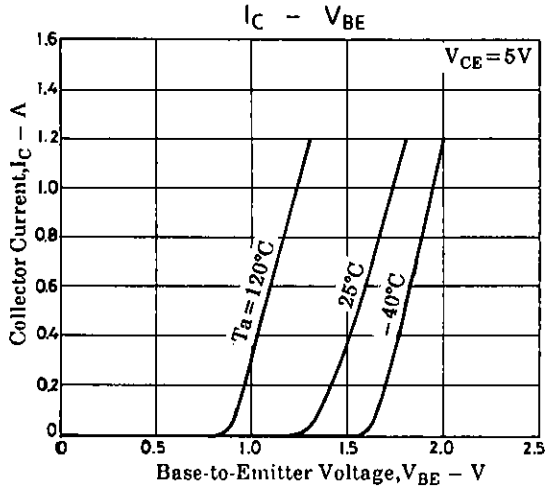
Es/b Test Circuit
$V_{CC} = 20V$, $R_{BE} = 100\Omega$



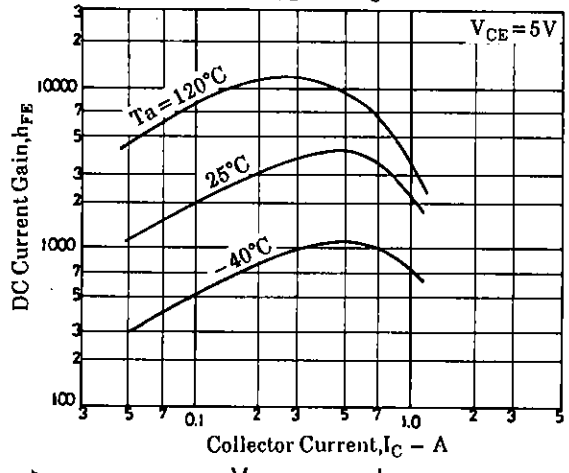
I_C – V_{CE}



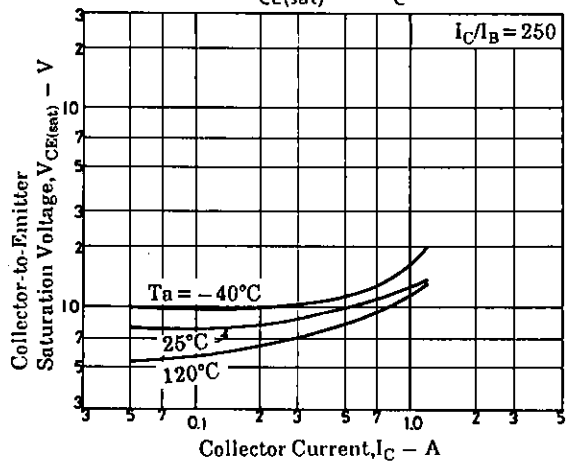
I_C – V_{BE}



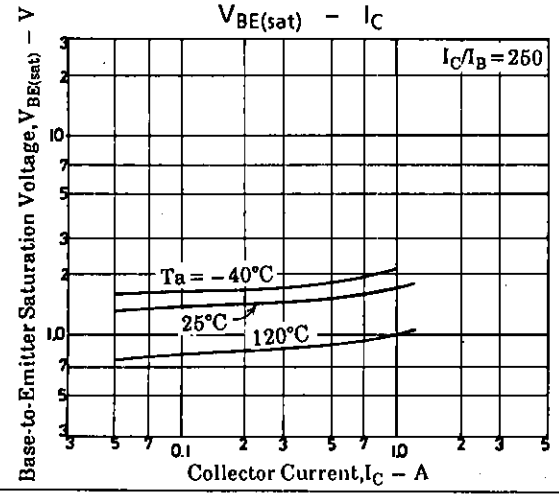
h_{FE} – I_C



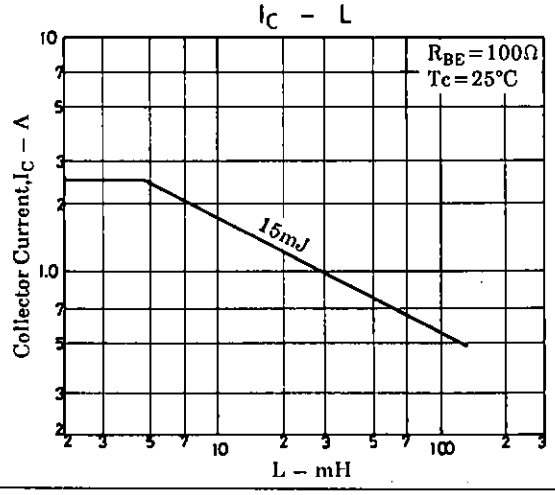
$V_{CE(sat)}$ – I_C



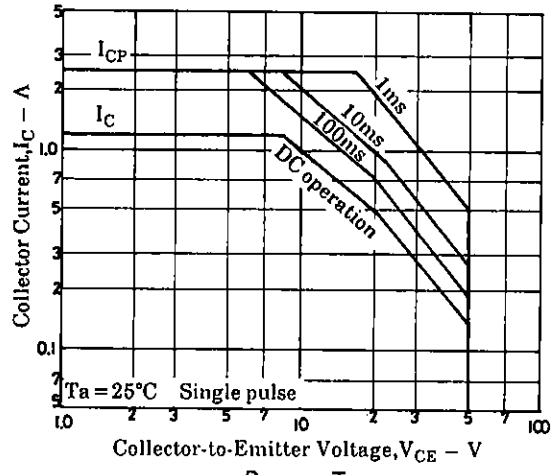
$V_{BE(sat)}$ – I_C



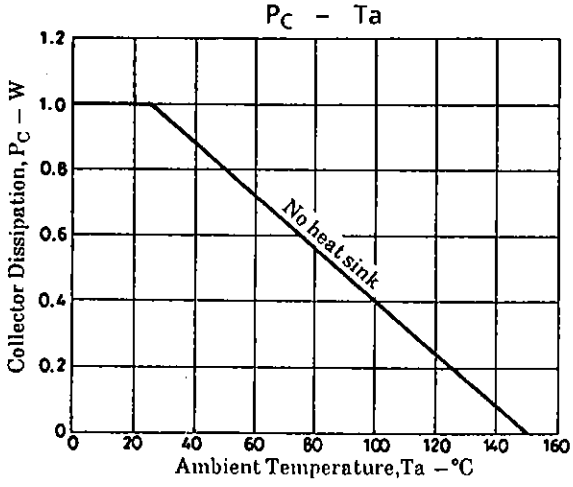
I_C – L



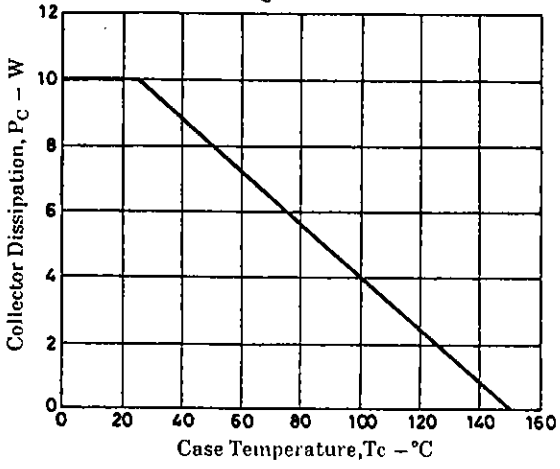
ASO



P_C – Ta



P_C – Tc



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