Ordering number:EN2146B

NPN Epitaxial Planar Silicon Darlington Transistor

2SC3705

Printer Driver Applications

Applications

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

Features

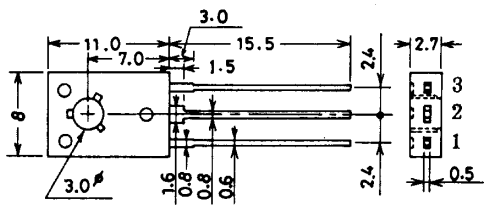
· High DC current gain.
· Large current capacityu and wide ASO.
· Contains a Zener diode across collector and base.

Package Dimensions

unit:mm

2009B

[2SC3705]



JEDEC : TO-126

1 : Emitter
2 : Collector
3 : Base

Specifications

Absolute Maximum Ratings at Ta = 25˚C

Parameter	Symbol	Conditions	Ratings	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

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
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
Collector-to-Emitter Saturation Voltage	$V_{CE(sat)}$	I_C=500mA, I_B=2mA		1.0	1.5	V
Base-to-Emitter Saturation Voltage	$V_{BE(sat)}$	I_C=500mA, I_B=2mA			2.0	V

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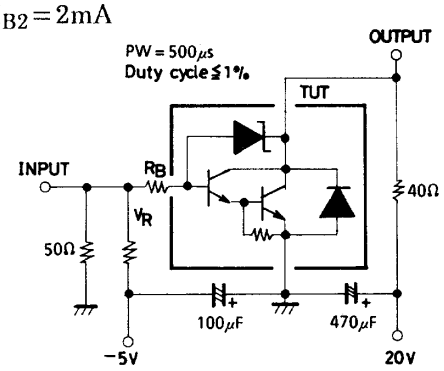
Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Collector-to-Base Breakdown Voltage	$V_{(BR)CBO}$	I_C=0.1mA, I_E=0	50	60	70	V
Collector-to-Emitter Breakdown Voltage	$V_{(BR)CEO}$	I_C=1mA, R_{BE}=∞	50	60	70	V
Turn-ON Time	t_{on}	See specified test circuit.		0.2		μs
Storage Time	t_{stg}	See specified test circuit.		2.2		μs
Fall Time	t_f	See specified test circuit.		0.4		μs

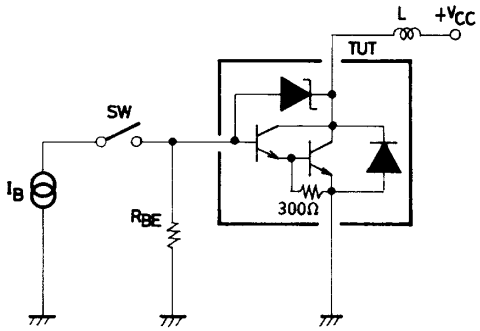
Switching Time Test Circuit

$I_{B1} = -I_{B2} = 2mA$

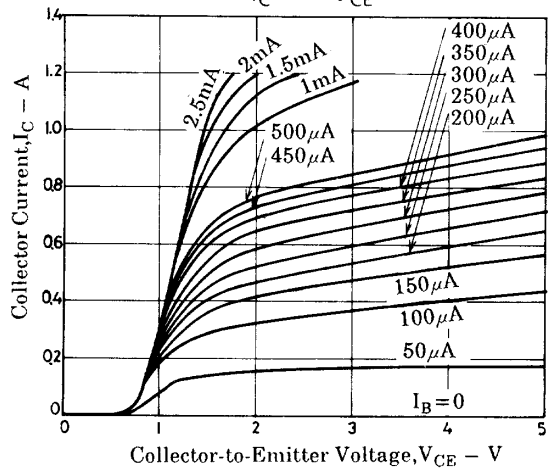


Es/b Test Circuit

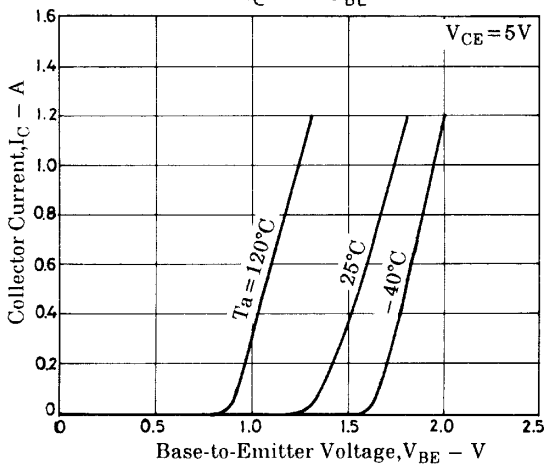
$V_{CC} = 20V, R_{BE} = 100\Omega$



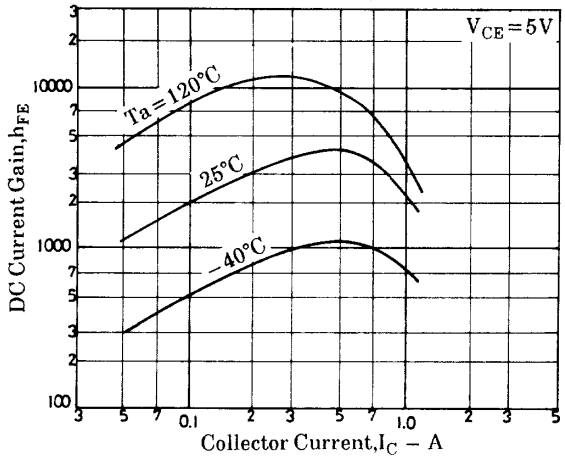
I_C – V_{CE}



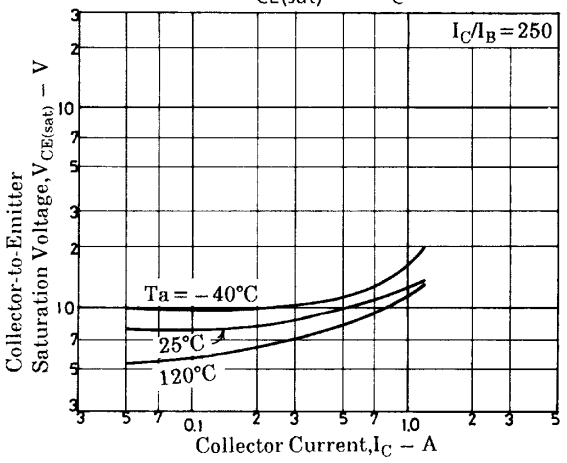
I_C – V_{BE}



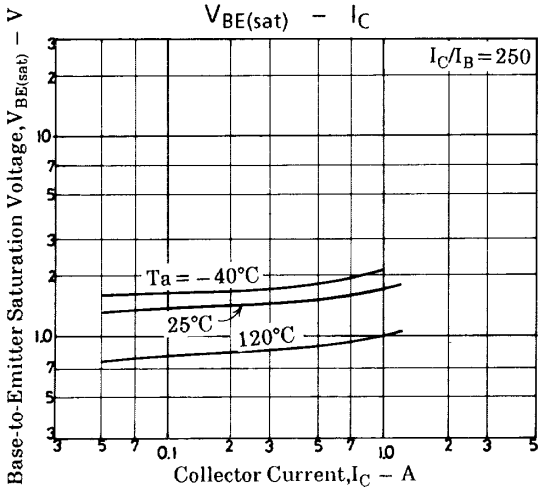
h_{FE} – I_C



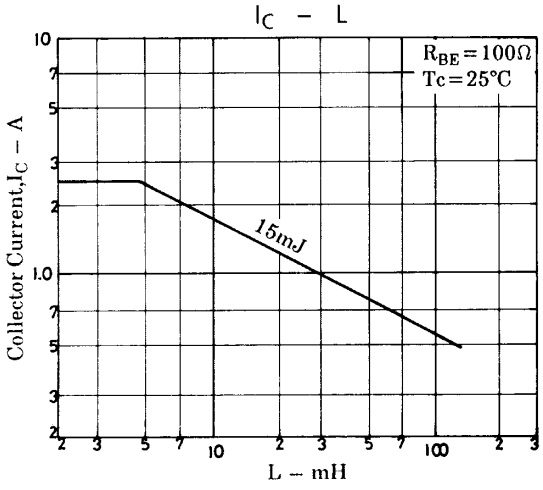
$V_{CE(sat)}$ – I_C



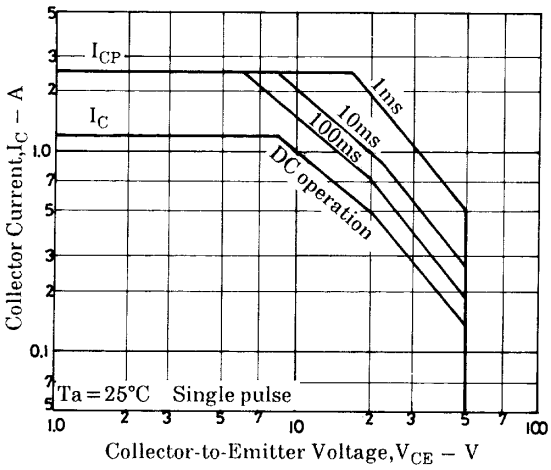
$V_{BE(sat)}$ – I_C



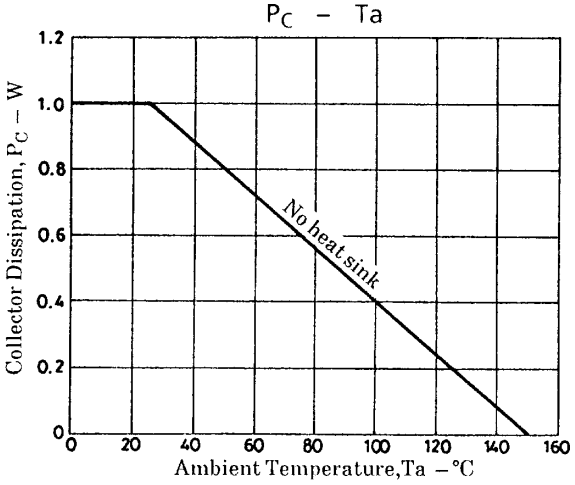
I_C – L



ASO



P_C – Ta



P_C – Tc