

NPN Epitaxial Planar Silicon Darlington Transistor

**SANYO****2SC3705****Printer Driver Applications****Applications**

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

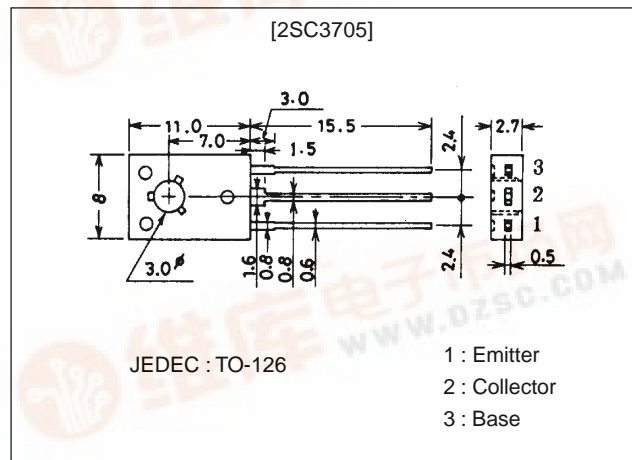
**Features**

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

**Package Dimensions**

unit:mm

2009B

**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	$P_C$	$T_C=25^\circ\text{C}$	1	W
			10	W
Junction Temperature	$T_J$		150	°C
Storage Temperature	$T_{stg}$		-55 to +150	°C

**Electrical Characteristics at Ta = 25°C**

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Collector Cutoff Current	$I_{CBO}$	$V_{CB}=40\text{V}, I_E=0$			19	μA
Emitter Cutoff Current	$I_{EBO}$	$V_{EB}=5\text{V}, I_C=0$			10	μA
DC Current Gain	$h_{FE}$	$V_{CE}=5\text{V}, I_C=0.5\text{A}$	1000	4000		
Gain-Bandwidth Product	$f_T$	$V_{CE}=5\text{V}, I_C=0.5\text{A}$		180		MHz
Inductive Load Handling Capability	$E_s/b$	$L=100\text{mH}, R_{BE}=100\Omega$	15			mJ
Collector-to-Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C=500\text{mA}, I_B=2\text{mA}$		1.0	1.5	V
Base-to-Emitter Saturation Voltage	$V_{BE(sat)}$	$I_C=500\text{mA}, I_B=2\text{mA}$			2.0	V

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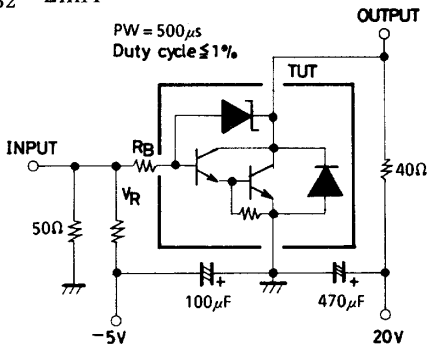
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Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Collector-to-Base Breakdown Voltage	$V_{(BR)CBO}$	$I_C=0.1mA, I_E=0$	50	60	70	V
Collector-to-Emitter Breakdown Voltage	$V_{(BR)CEO}$	$I_C=1mA, R_{BE}=\infty$	50	60	70	V
Turn-ON Time	$t_{on}$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

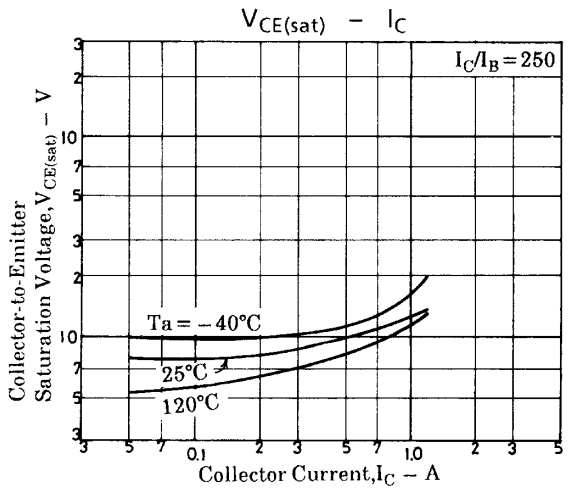
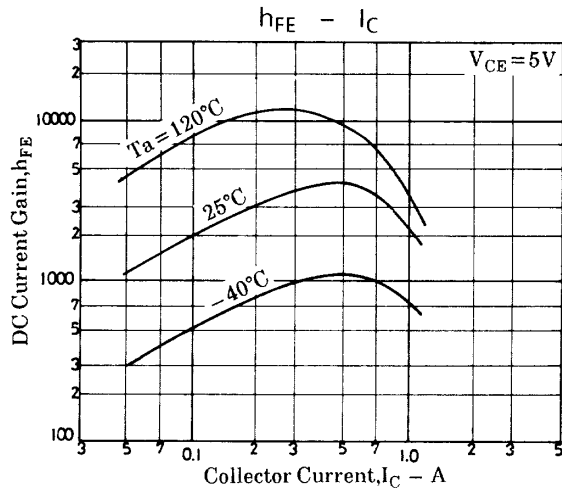
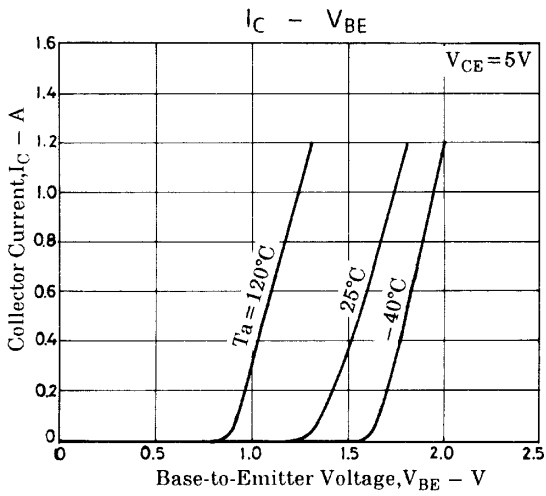
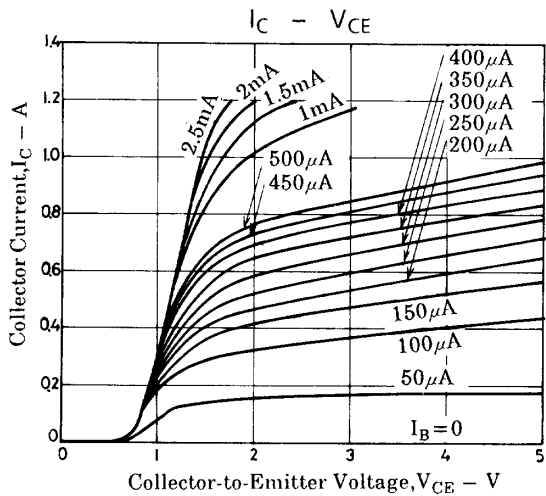
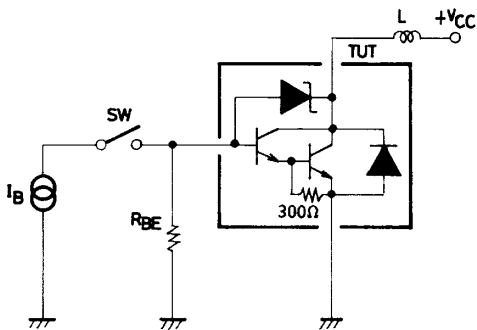
Switching Time Test Circuit

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

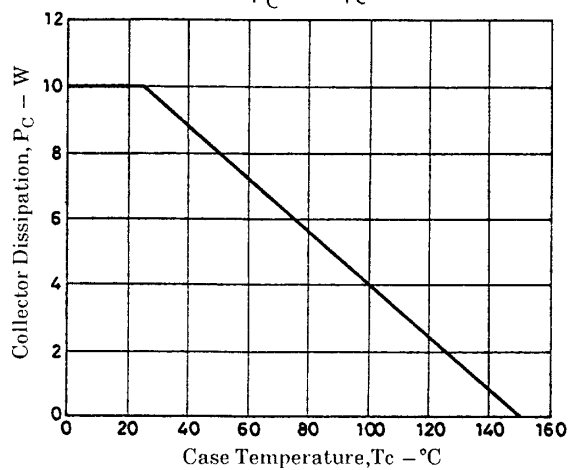
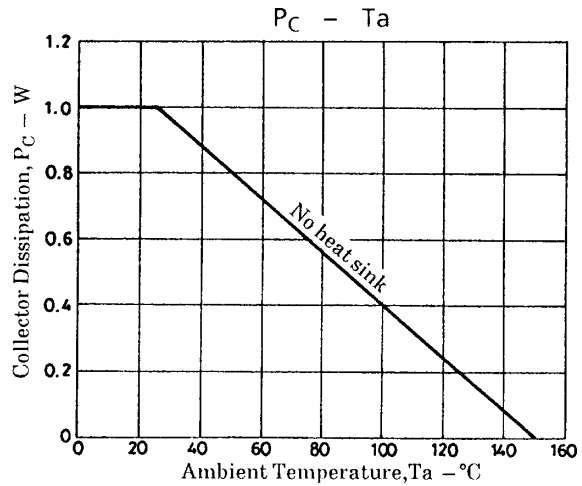
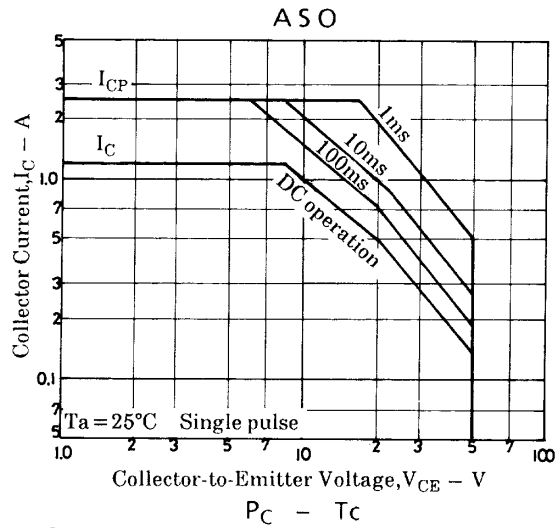
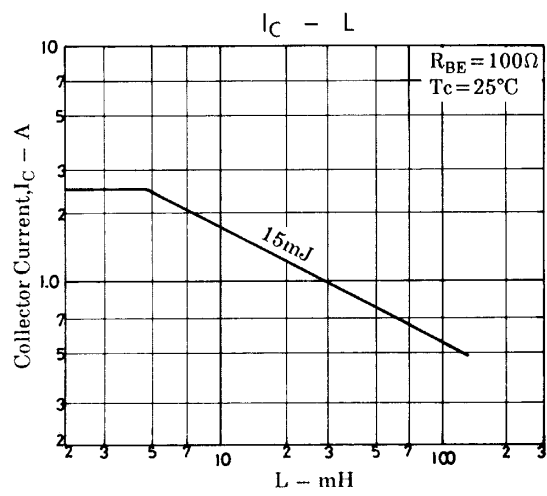
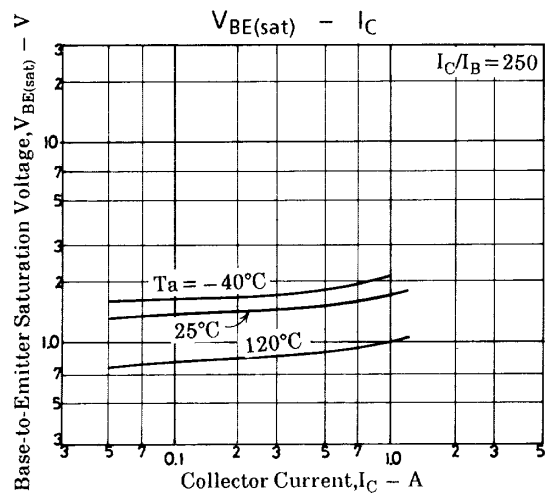


Es/b Test Circuit

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



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