



SANYO Semiconductors

DATA SHEET

2SD1229

 — NPN Epitaxial Planar Silicon Darlington Transistor

Driver Applications

Applications

- Motor drivers, printer hammer drivers, relay drivers, voltage regulator control.

Features

- High DC current gain.
- High current capacity and wide ASO.
- Low saturation voltage.

Specifications

Absolute Maximum Ratings at $T_a=25^\circ\text{C}$

Parameter	Symbol	Conditions	Ratings	Unit
Collector-to-Base Voltage	V_{CB0}		70	V
Collector-to-Emitter Voltage	V_{CEO}		60	V
Emitter-to-Base Voltage	V_{EBO}		6	V
Collector Current	I_C		10	A
Collector Current (Pulse)	I_{CP}		15	A
Collector Dissipation	P_C		2.5	W
		$T_c=25^\circ\text{C}$	60	W
Junction Temperature	T_j		150	$^\circ\text{C}$
Storage Temperature	T_{stg}		-55 to +150	$^\circ\text{C}$

Electrical Characteristics at $T_a=25^\circ\text{C}$

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Collector Cutoff Current	I_{CBO}	$V_{CB}=40\text{V}, I_E=0\text{A}$			0.1	mA
Emitter Cutoff Current	I_{EBO}	$V_{EB}=5\text{V}, I_C=0\text{A}$			3.0	mA
DC Current Gain	h_{FE}	$V_{CE}=2\text{V}, I_C=5\text{A}$	2000	5000		
Gain-Bandwidth Product	f_T	$V_{CE}=5\text{V}, I_C=5\text{A}$		20		MHz

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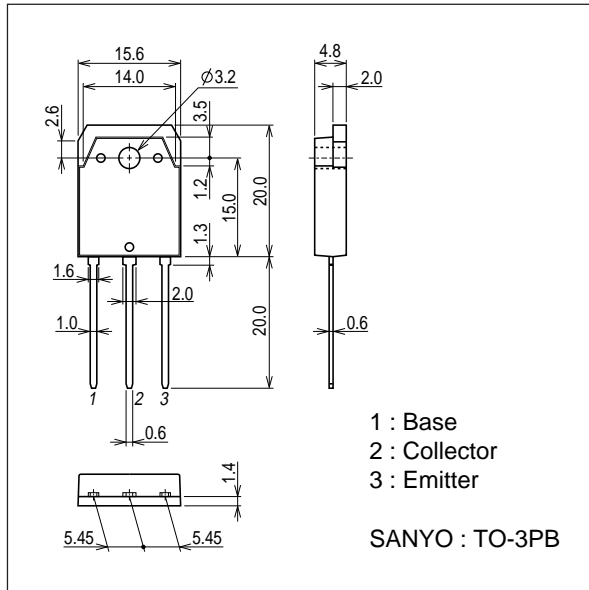
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Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Collector-to-Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C=5A, I_B=10mA$		0.9	1.5	V
Base-to-Emitter Saturation Voltage	$V_{BE(sat)}$	$I_C=5A, I_B=10mA$			2.0	V
Collector-to-Base Breakdown Voltage	$V_{(BR)CBO}$	$I_C=5mA, I_E=0A$	70			V
Collector-to-Emitter Breakdown Voltage	$V_{(BR)CEO}$	$I_C=50mA, R_{BE}=\infty$	60			V
Turn-ON Time	t_{on}	See specified Test Circuit		0.6		μs
Storage Time	t_{stg}	See specified Test Circuit		3.0		μs
Fall Time	t_f	See specified Test Circuit		1.8		μs

Package Dimensions

unit : mm (typ)

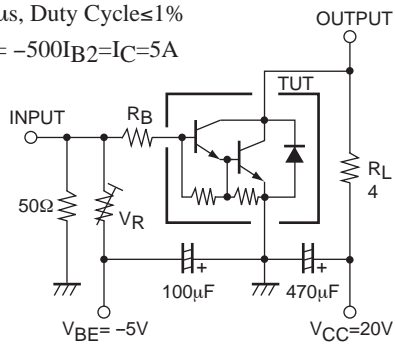
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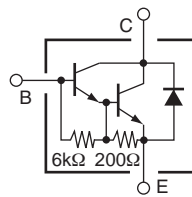
Switching Time Test Circuit

$PW=50\mu s$, Duty Cycle $\leq 1\%$

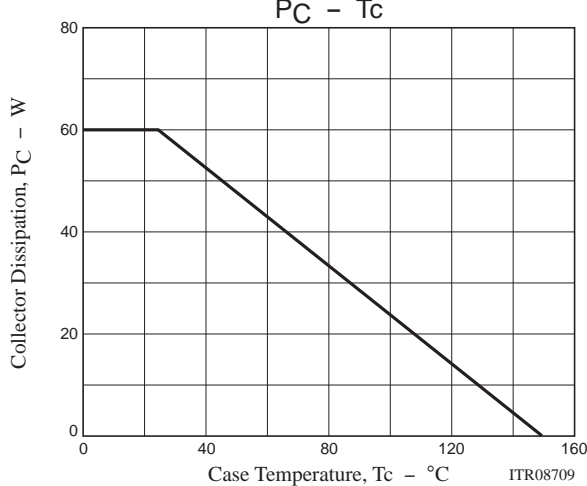
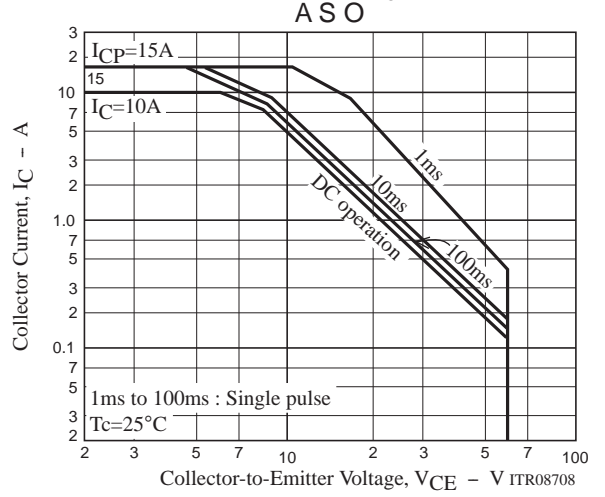
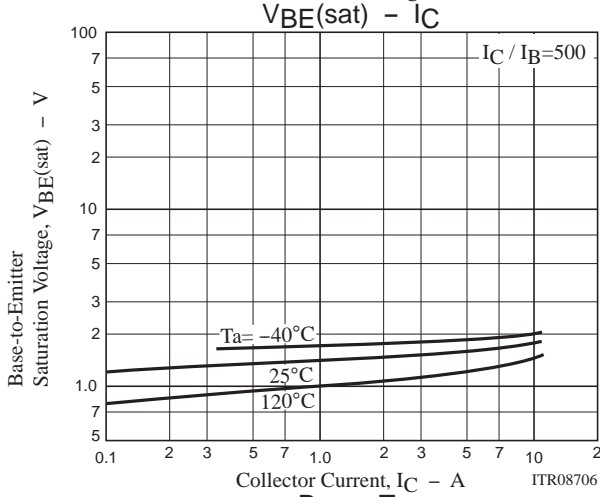
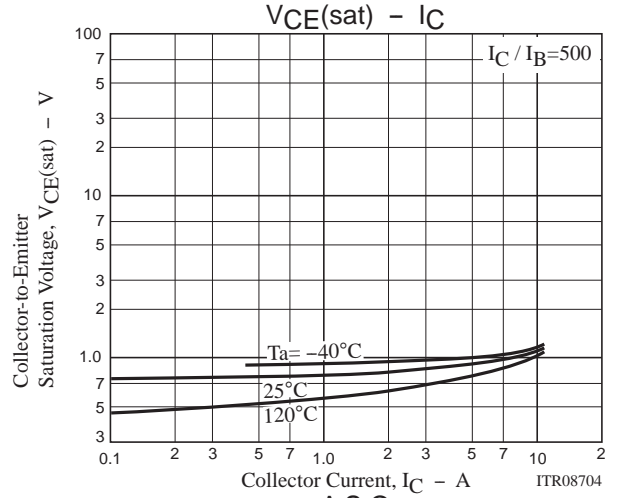
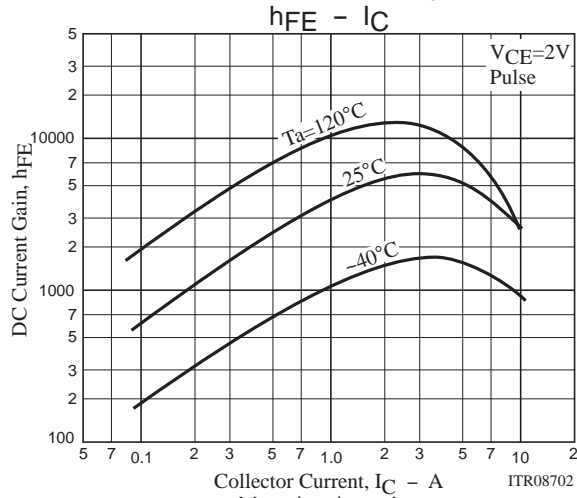
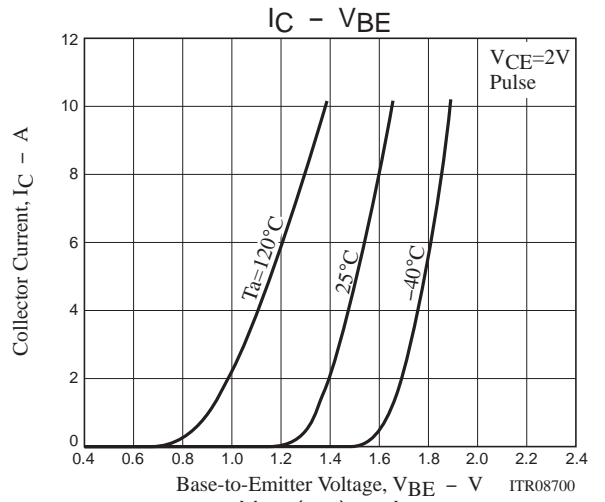
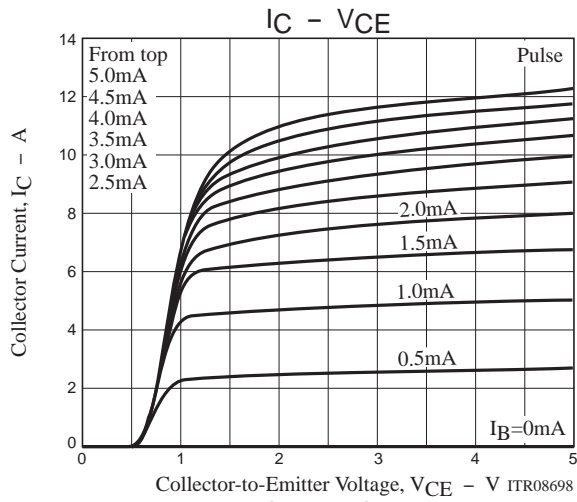
$500I_{B1} = -500I_{B2} = I_C = 5A$



Electrical Connection



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