Ordering number : ENN8007

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DATA SHEET

SOP8501

PNP Epitaxial Planar Silicon Transistor
NPN Triple Diffused Planar Silicon Transistor

High-Voltage Driver Applications

Features

- High breakdown voltage. (V_{CEO}≥400V)
- Excellent h_{FE} linearity.

Specifications

Absolute Maximum Ratings at Ta=25°C

Parameter	Symbol	Conditions	PNP	NPN	Unit
Collector-to-Base Voltage	V_{CBO}		−400	400	V
Collector-to-Emitter Voltage	V_{CEO}		−400	400	V
Emitter-to-Base Voltage	V_{EBO}		−5	5	V
Collector Current	I_C		−1	0.2	A
Collector Current (Pulse)	I_{CP}		−2	0.4	A
Collector Dissipation	P_C	Mounted on a ceramic board (2000mm²X0.8mm) 1unit	1.3		W
	P_T	Mounted on a ceramic board (2000mm²X0.8mm) 1unit	1.6		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	
[PNP]						
Collector Cutoff Current	I_{CBO}	V_{CB}=−300V, I_E=0			−1.0	μA
Emitter Cutoff Current	I_{EBO}	V_{EB}=−4V, I_C=0			−1.0	μA
DC Current Gain	h_{FE}	V_{CE}=−10V, I_C=−100mA	40		200	
Gain-Bandwidth Product	f_T	V_{CE}=−10V, I_C=−50mA		50		MHz
Collector-to-Emitter Saturation Voltage	V_{CE}(sat)	I_C=−200mA, I_B=−20mA			−1.0	V
Base-to-Emitter Saturation Voltage	V_{BE}(sat)	I_C=−200mA, I_B=−20mA			−1.0	V
Collector-to-Base Breakdown Voltage	$V_{(BR)CBO}$	I_C=−10μA, I_E=0	−400			V
Collector-to-Emitter Breakdown Voltage	$V_{(BR)CEO}$	I_C=−1mA, R_{BE}=∞	−400			V
Emitter-to-Base Breakdown Voltage	$V_{(BR)EBO}$	I_E=−10μA, I_C=0	−5			V
Output Capacitance	Cob	V_{CB}=−30V, f=1MHz		12		pF
Turn-ON Time	ton	See specified Test Circuit.		0.25		μs
Storage Time	t_{stg}	See specified Test Circuit.		3.0		μs
Fall Time	t_f	See specified Test Circuit		0.3		μs

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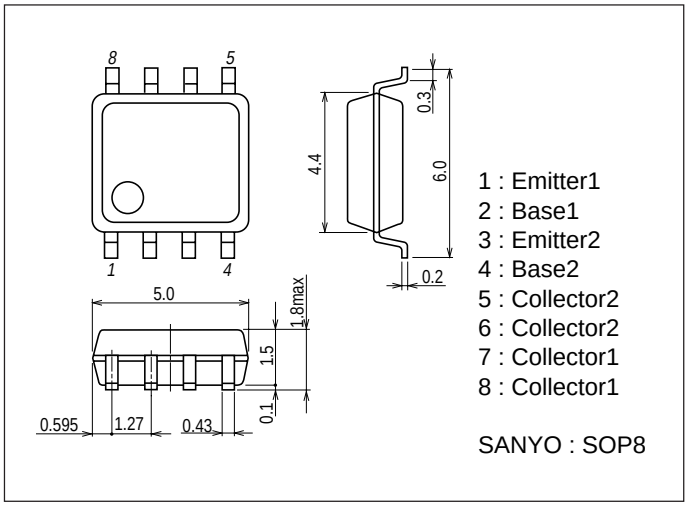
Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
[NPN]						
Collector Cutoff Current	I_{CBO}	V_{CB}=300V, I_E=0			1.0	μA
Emitter Cutoff Current	I_{EBO}	V_{EB}=4V, I_C=0			1.0	μA
DC Current Gain	h_{FE}	V_{CE}=10V, I_C=50mA	60		200	
Gain-Bandwidth Product	f_T	V_{CE}=30V, I_C=10mA		70		MHz
Collector-to-Emitter Saturation Voltage	V_{CE}(sat)	I_C=50mA, I_B=5mA			0.6	V
Base-to-Emitter Saturation Voltage	V_{BE}(sat)	I_C=50mA, I_B=5mA			1.0	V
Collector-to-Base Breakdown Voltage	$V_{(BR)CBO}$	I_C=10μA, I_E=0	400			V
Collector-to-Emitter Breakdown Voltage	$V_{(BR)CEO}$	I_C=1mA, R_{BE}=∞	400			V
Emitter-to-Base Breakdown Voltage	$V_{(BR)EBO}$	I_E=10μA, I_C=0	5			V
Output Capacitance	Cob	V_{CB}=30V, f=1MHz		4		pF
Reverse Transfer Capacitance	Cre	V_{CB}=30V, f=1MHz		3		pF
Turn-ON Time	ton	See specified Test Circuit.		0.25		μs
Turn-OFF Time	t_{off}	See specified Test Circuit.		5.0		μs

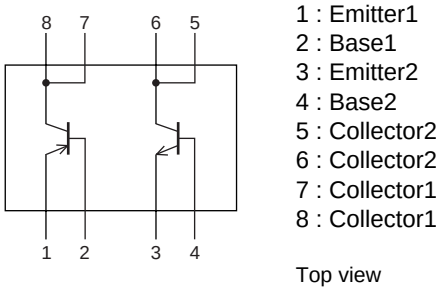
Package Dimensions

unit : mm

2233

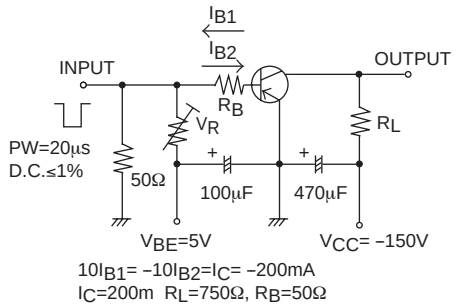


Electrical Connection

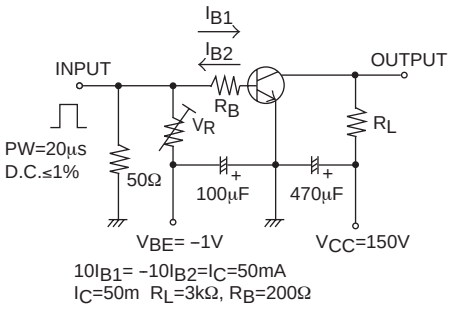


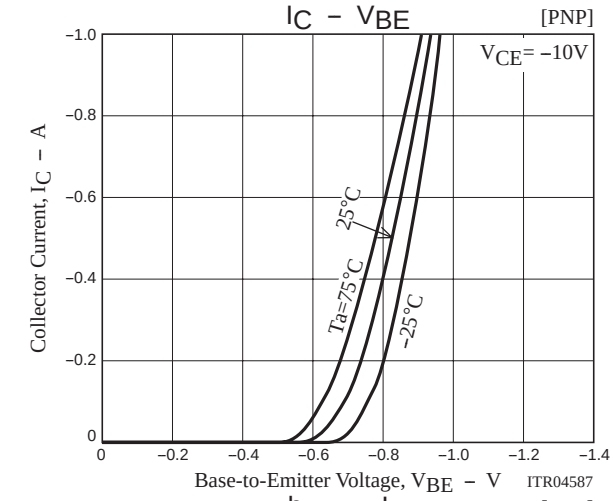
Switching Time Test Circuit

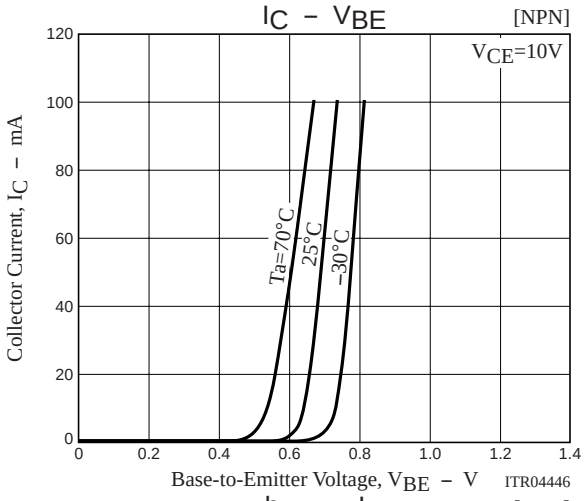
[PNP]

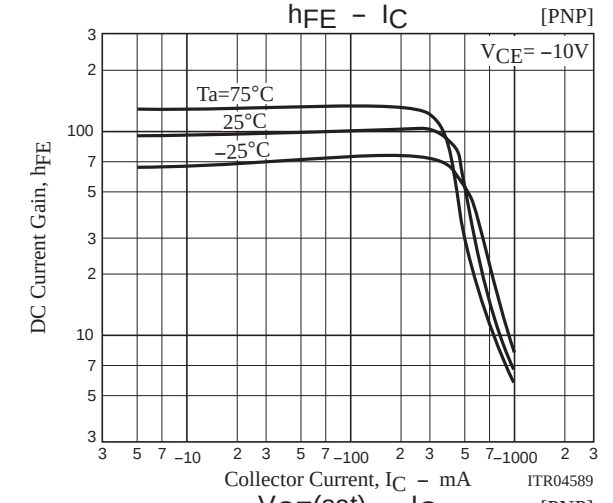


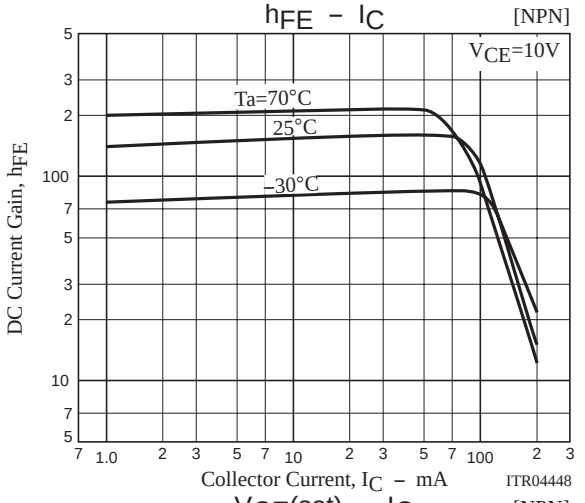
[NPN]

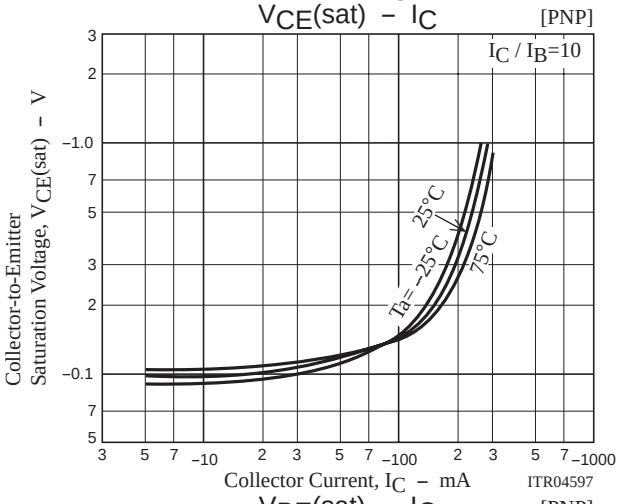


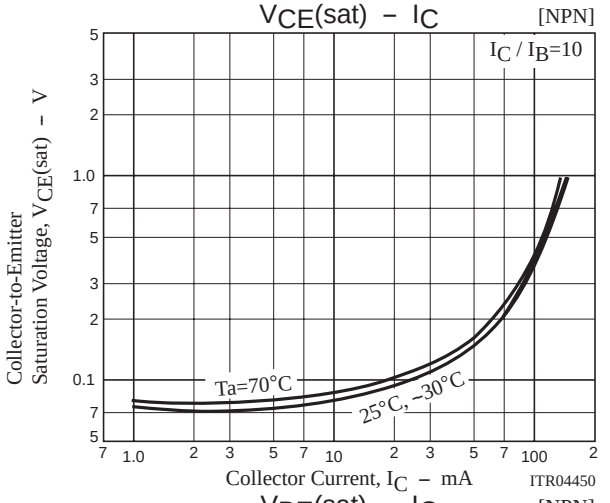

IC – VBE
[PNP]
VCE= –10V
Collector Current, IC – A
Base-to-Emitter Voltage, VBE – V
25°C
Ta=75°C
–25°C
ITR04587

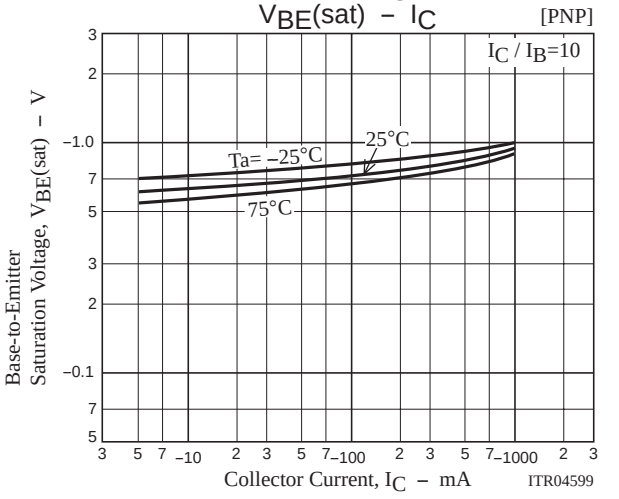

IC – VBE
[NPN]
VCE=10V
Collector Current, IC – mA
Base-to-Emitter Voltage, VBE – V
Ta=70°C
25°C
–30°C
ITR04446

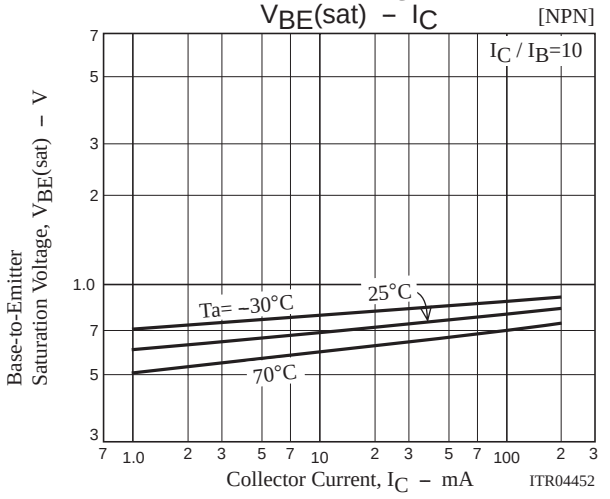

hFE – IC
[PNP]
VCE= –10V
DC Current Gain, hFE
Collector Current, IC – mA
Ta=75°C
25°C
–25°C
ITR04589


hFE – IC
[NPN]
VCE=10V
DC Current Gain, hFE
Collector Current, IC – mA
Ta=70°C
25°C
–30°C
ITR04448

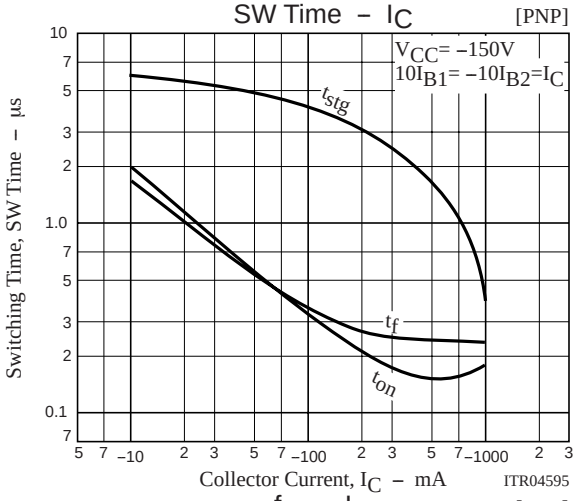

VCE(sat) – IC
[PNP]
IC / IB=10
Collector-to-Emitter Saturation Voltage, VCE(sat) – V
Collector Current, IC – mA
25°C
Ta= –25°C
75°C
ITR04597


VCE(sat) – IC
[NPN]
IC / IB=10
Collector-to-Emitter Saturation Voltage, VCE(sat) – V
Collector Current, IC – mA
Ta=70°C
25°C, –30°C
ITR04450

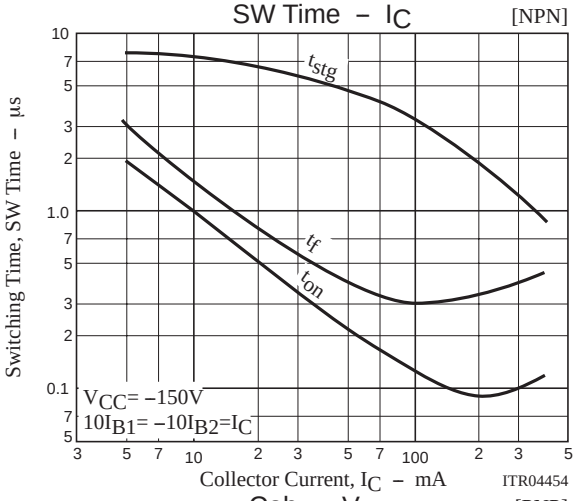

VBE(sat) – IC
[PNP]
IC / IB=10
Base-to-Emitter Saturation Voltage, VBE(sat) – V
Collector Current, IC – mA
Ta= –25°C
25°C
75°C
ITR04599


VBE(sat) – IC
[NPN]
IC / IB=10
Base-to-Emitter Saturation Voltage, VBE(sat) – V
Collector Current, IC – mA
Ta= –30°C
25°C
70°C
ITR04452

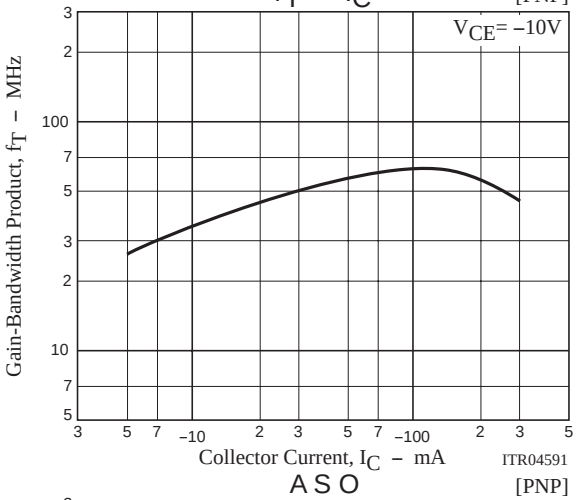
SW Time – I_C [PNP]



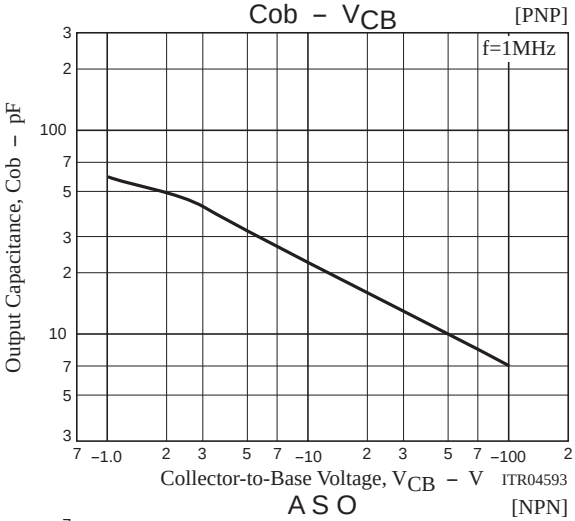
SW Time – I_C [NPN]



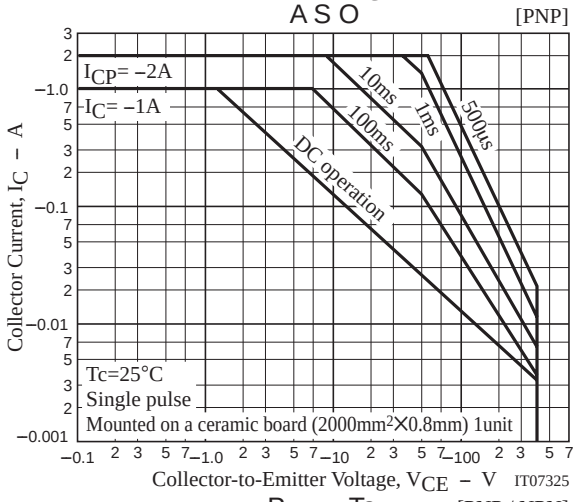
f_T – I_C [PNP]



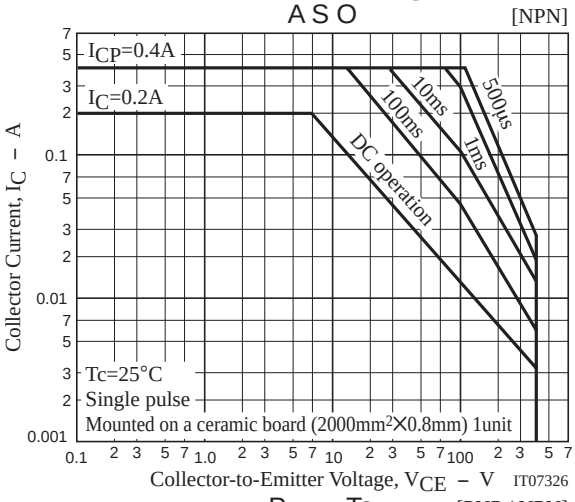
Cob – V_{CB} [PNP]



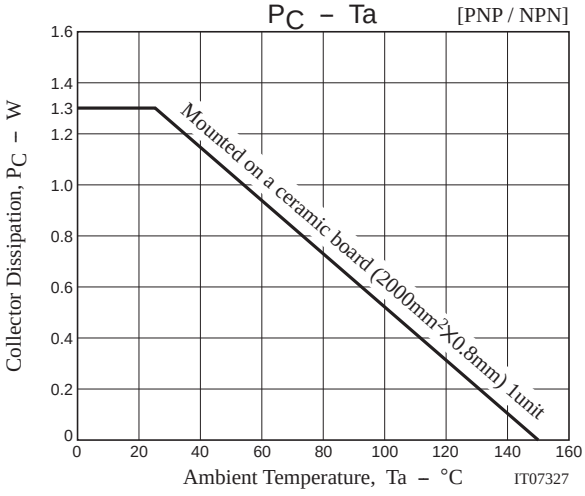
A S O [PNP]



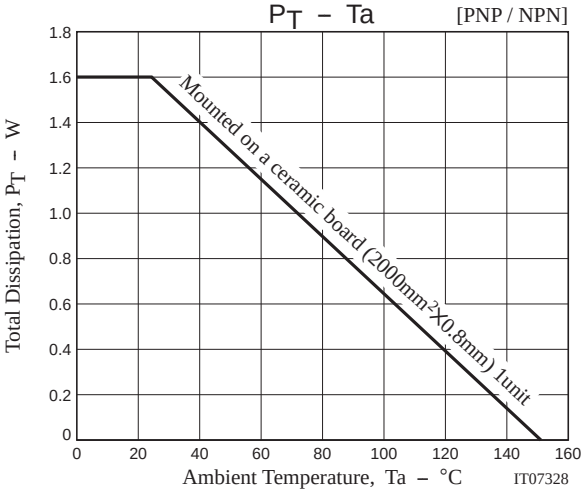
A S O [NPN]



P_C – Ta [PNP / NPN]



P_T – Ta [PNP / NPN]



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