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March 2008

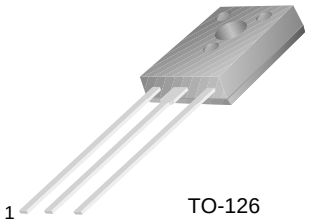
2SA1381/KSA1381
PNP Epitaxial Silicon Transistor

Applications

- Audio, Voltage Amplifier and Current Source
- CRT Display, Video Output
- General Purpose Amplifier

Features

- High Voltage : V_{CEO}= -300V
- Low Reverse Transfer Capacitance : C_{re}= 2.3pF at V_{CB} = -30V
- Excellent Gain Linearity for low THD
- High Frequency: 150MHz
- Full thermal and electrical Spice models are available
- Complement to 2SC3503/KSC3503



TO-126

1. Emitter 2.Collector 3.Base

Absolute Maximum Ratings* T_a = 25°C unless otherwise noted

Symbol	Parameter	Ratings	Units
BV_{CBO}	Collector-Base Voltage	-300	V
BV_{CEO}	Collector-Emitter Voltage	-300	V
BV_{EBO}	Emitter-Base Voltage	-5	V
I_C	Collector Current(DC)	-100	mA
I_{CP}	Collector Current(Pulse)	-200	mA
P_C	Total Device Dissipation, T_C=25°C T_C=125°C	7 1.2	W W
T_J, T_{STG}	Junction and Storage Temperature	- 55 ~ +150	°C

* These ratings are limiting values above which the serviceability of any semiconductor device may be impaired.

Thermal Characteristics* T_a=25°C unless otherwise noted

Symbol	Parameter	Max.	Units
$R_{\theta JC}$	Thermal Resistance, Junction to Case	17.8	°C/W

* Device mounted on minimum pad size

h_{FE} Classification

Classification	C	D	E	F
h_{FE}	40 ~ 80	60 ~ 120	100 ~ 200	160 ~ 320

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Electrical Characteristics* T_a=25°C unless otherwise noted

Symbol	Parameter	Test Condition	Min.	Typ.	Max.	Units
BV_{CBO}	Collector-Base Breakdown Voltage	I_C = - 10μA, I_E = 0	- 300			V
BV_{CEO}	Collecto- Emitter Breakdown Voltage	I_C = - 1mA, I_B = 0	- 300			V
BV_{EBO}	Emitter-Base Breakdown Voltage	I_E = - 10μA, I_C = 0	- 5			V
I_{CBO}	Collector Cut-off Current	V_{CB} = - 200V, I_E = 0			- 0.1	μA
I_{EBO}	Emitter Cut-off Current	V_{EB} = - 4V, I_C = 0			- 0.1	μA
h_{FE}	DC Current Gain	V_{CE} = - 10V, I_C = - 10mA	40		320	
V_{CE}(sat)	Collector-Emitter Saturation Voltage	I_C = - 20mA, I_B = - 2mA			- 0.6	V
V_{BE}(sat)	Base-Emitter Saturation Voltage	I_C = - 20mA, I_B = - 2mA			- 1	V
f_T	Current Gain Bandwidth Product	V_{CE} = - 30V, I_C = - 10mA		150		MHz
C_{ob}	Output Capacitance	V_{CB} = - 30V, f = 1MHz		3.1		pF
C_{re}	Reverse Transfer Capacitance	V_{CB} = - 30V, f = 1MHz		2.3		pF

* Pulse Test: Pulse Width≤300μs, Duty Cycle≤2%

Ordering Information

Part Number*	Marking	Package	Packing Method	Remarks
2SA1381CSTU	2SA1381C	TO-126	TUBE	hFE1 C grade
2SA1381DSTU	2SA1381D	TO-126	TUBE	hFE1 D grade
2SA1381ESTU	2SA1381E	TO-126	TUBE	hFE1 E grade
2SA1381FSTU	2SA1381F	TO-126	TUBE	hFE1 F grade
KSA1381CSTU	A1381C	TO-126	TUBE	hFE1 C grade
KSA1381DSTU	A1381D	TO-126	TUBE	hFE1 D grade
KSA1381ESTU	A1381E	TO-126	TUBE	hFE1 E grade
KSA1381FSTU	A1381F	TO-126	TUBE	hFE1 F grade

* 1. Affix "-S-" means the standard TO126 Package.(see package dimensions). If the affix is "-STS-" instead of "-S-", that mean the short-lead TO126 package.
2. Suffix "-TU" means the tube packing, The Suffix "TU" could be replaced to other suffix character as packing method.

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Typical Characteristics

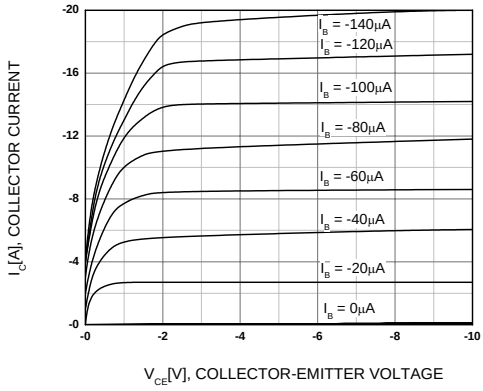


Figure 1. Static Characteristic

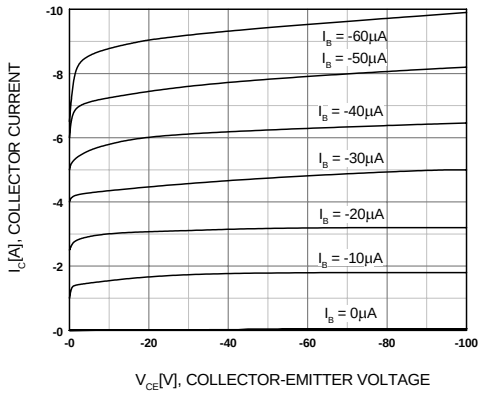


Figure 2. Static Characteristic

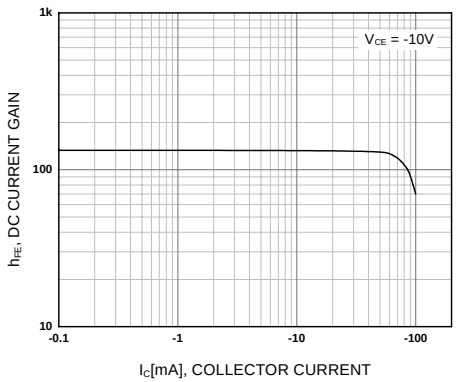


Figure 3. DC current Gain

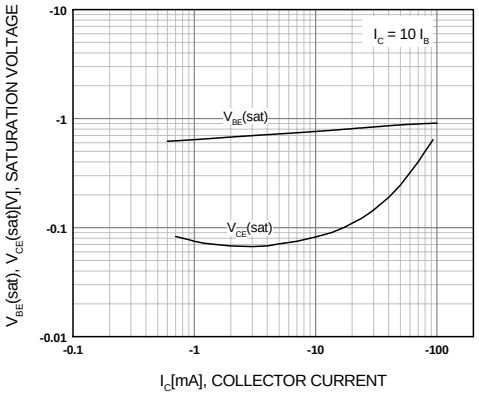


Figure 4. Base-Emitter Saturation Voltage Collector-Emitter Saturation Voltage

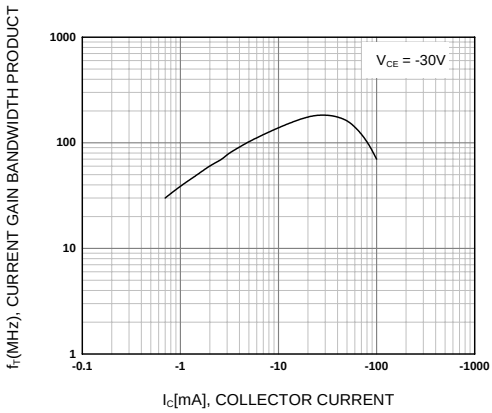


Figure 5. Current Gain Bandwidth Product

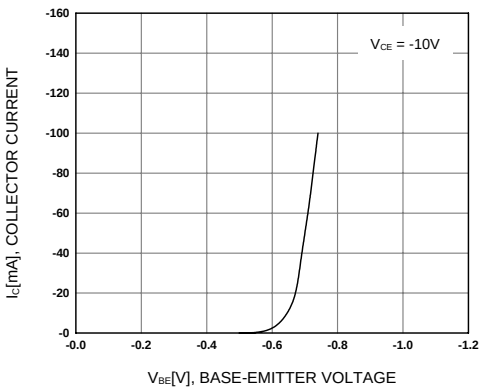


Figure 6. Base-Emitter On Voltage

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Typical Characteristics (Continued)

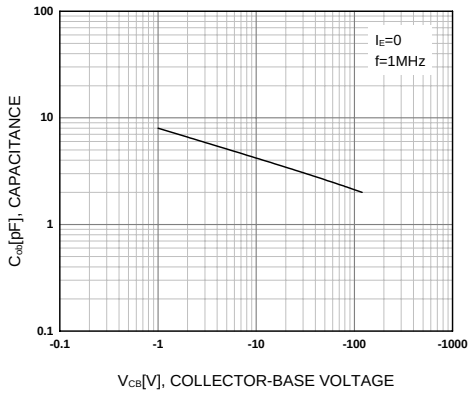


Figure 7. Collector Output Capacitance

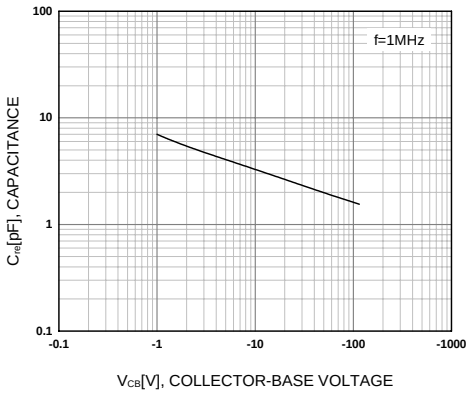


Figure 8. Reverse Transfer Capacitance

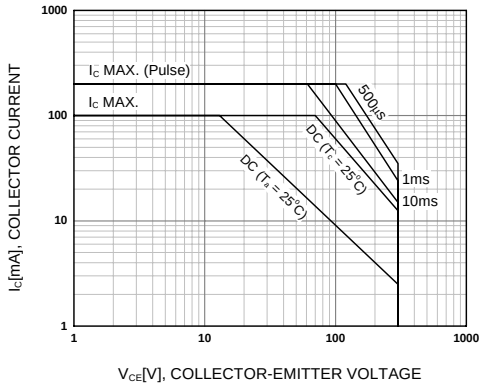


Figure 9. Safe Operating Area

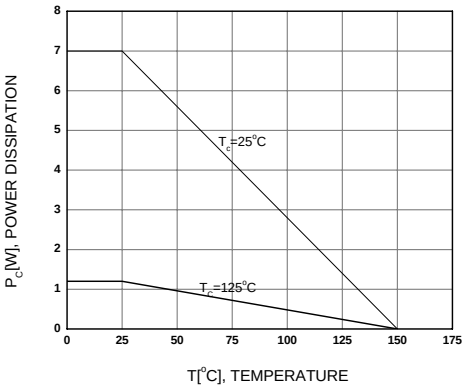
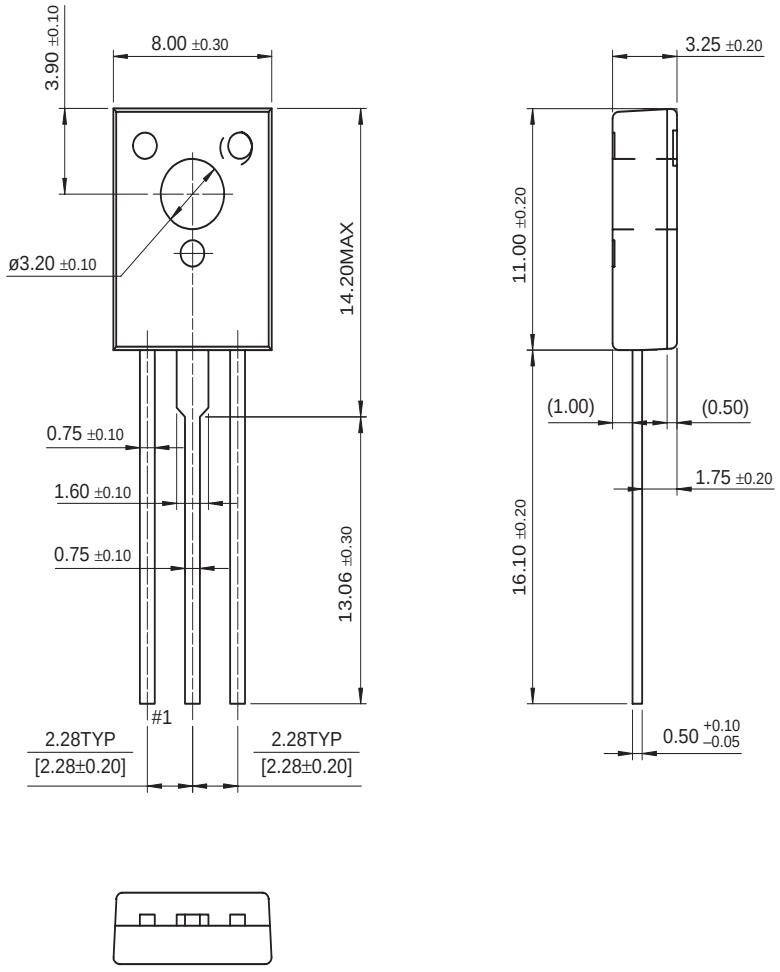


Figure 10. Power Derating

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Package Dimensions

TO-126



Dimensions in Millimeters

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Definition of Terms

Datasheet Identification	Product Status	Definition
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Preliminary	First Production	This datasheet contains preliminary data; supplementary data will be published at a later date. Fairchild Semiconductor reserves the right to make changes at any time without notice to improve design.
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