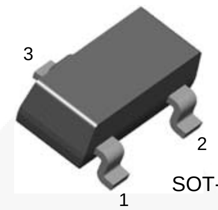
FAIRCHILD

October 2014

KST2222A
NPN Epitaxial Silicon Transistor

Features

- General-Purpose Transistor



SOT-23

1. Base 2. Emitter 3. Collector

Ordering Information

Part Number	Marking	Package	Packing Method
KST2222AMTF	1P	SOT-23 3L	Tape and Reel

Absolute Maximum Ratings

Stresses exceeding the absolute maximum ratings may damage the device. The device may not function or be operable above the recommended operating conditions and stressing the parts to these levels is not recommended. In addition, extended exposure to stresses above the recommended operating conditions may affect device reliability. The absolute maximum ratings are stress ratings only. Values are at T_A = 25°C unless otherwise noted.

Symbol	Parameter	Value	Unit
V_{CBO}	Collector-Base Voltage	75	V
V_{CEO}	Collector-Emitter Voltage	40	V
V_{EBO}	Emitter-Base Voltage	6	V
I_C	Collector Current	600	mA
T_{STG}	Storage Temperature Range	-55 to +150	°C

Thermal Characteristics[1]

Values are at T_A = 25°C unless otherwise noted.

Symbol	Parameter	Value	Unit
P_D	Power Dissipation	350	mW
	Derate Above 25°C	2.8	mW/°C
$R_{\theta JA}$	Thermal Resistance, Junction-to-Ambient	357	°C/W

Note:

1. PCB size: FR-4, 76 mm x 114 mm x 1.57 mm (3.0 inch x 4.5 inch x 0.062 inch) with minimum land pattern size.

Electrical Characteristics

Values are at T_A = 25°C unless otherwise noted.

Symbol	Parameter	Conditions	Min.	Max.	Unit
BV_{CBO}	Collector-Base Breakdown Voltage	I_C = 10 µA, I_E = 0	75		V
BV_{CEO}	Collector-Emitter Breakdown Voltage	I_C = 10 mA, I_B = 0	40		V
BV_{EBO}	Emitter-Base Breakdown Voltage	I_E = 10 µA, I_C = 0	6		V
I_{CBO}	Collector Cut-Off Current	V_{CB} = 60 V, I_E = 0		0.01	µA
h_{FE}	DC Current Gain(2)	V_{CE} = 10 V, I_C = 0.1 mA	35		
		V_{CE} = 10 V, I_C = 1 mA	50		
		V_{CE} = 10 V, I_C = 10 mA	75		
		V_{CE} = 10 V, I_C = 150 mA	100	300	
		V_{CE} = 10 V, I_C = 500 mA	40		
V_{CE}(sat)	Collector-Emitter Saturation Voltage(2)	I_C = 150 mA, I_B = 15 mA		0.3	V
		I_C = 500 mA, I_B = 50 mA		1.0	
V_{BE}(sat)	Base-Emitter Saturation Voltage(2)	I_C = 150 mA, I_B = 15 mA	0.6	1.2	V
		I_C = 500 mA, I_B = 50 mA		2.0	
f_T	Current Gain Bandwidth Product	I_C = 20 mA, V_{CE} = 20 V, f = 100 MHz	300		MHz
C_{ob}	Output Capacitance	V_{CB} = 10 V, I_E = 0, f = 1 MHz		8	pF
NF	Noise Figure	I_C = 100 µA, V_{CE} = 10 V, R_S = 1 kΩ, f = 1 MHz		4	dB
t_{ON}	Turn-On Time	V_{CC} = 30 V, I_C = 150 mA, V_{BE} = 0.5 V, I_{B1} = 15 mA		35	ns
t_{OFF}	Turn-Off Time	V_{CC} = 30 V, I_C = 150 mA, I_{B1} = I_{B2} = 15 mA		285	ns

Note:

2. Pulse test: Pulse width ≤ 300 µs, duty cycle ≤ 2%

Typical Performance Characteristics

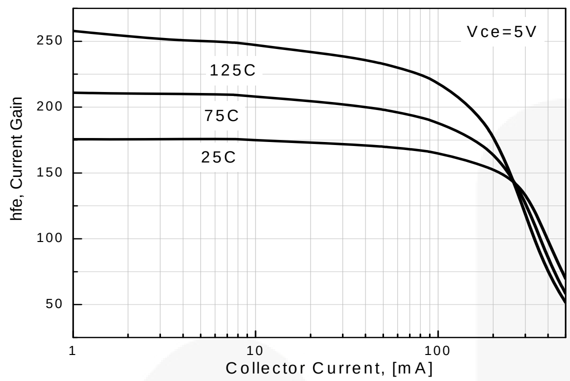


Figure 1. DC Current Gain

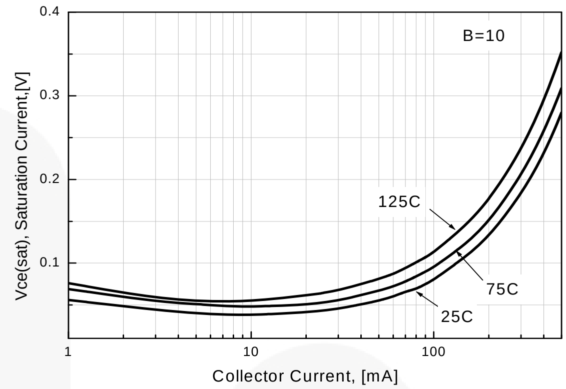


Figure 2. Collector-Emitter Saturation Voltage

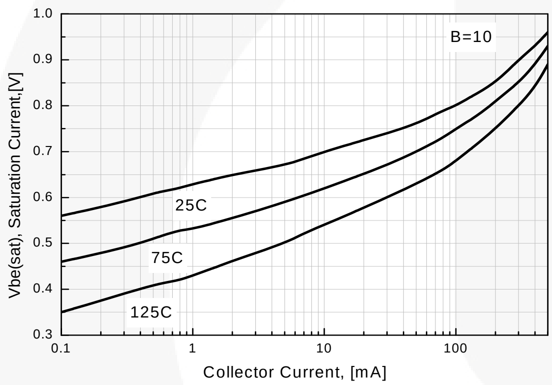


Figure 3. Base-Emitter Saturation Voltage

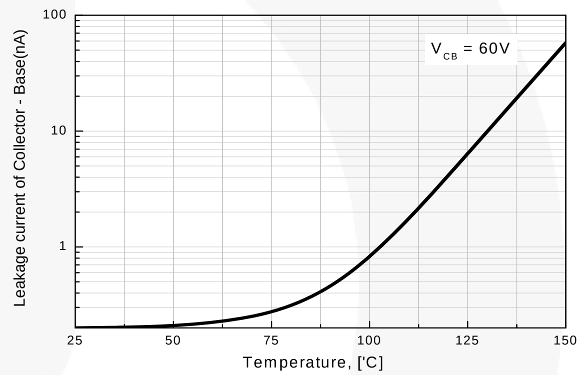


Figure 4. Collector-Base Leakage Current

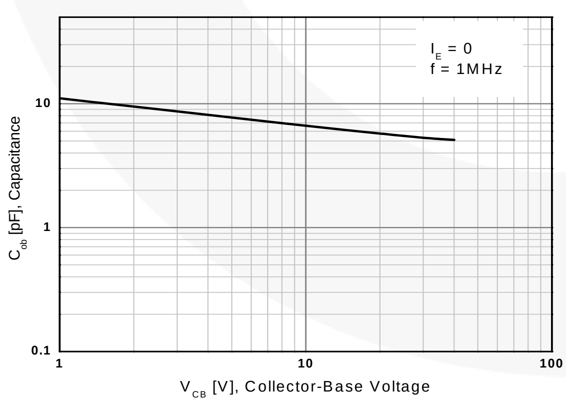


Figure 5. Output Capacitance

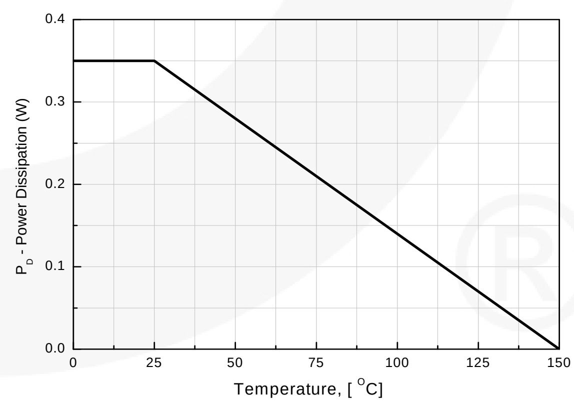
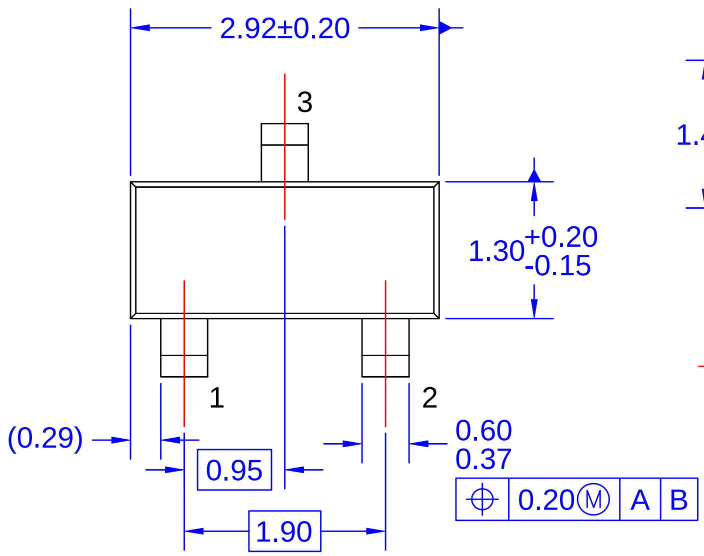
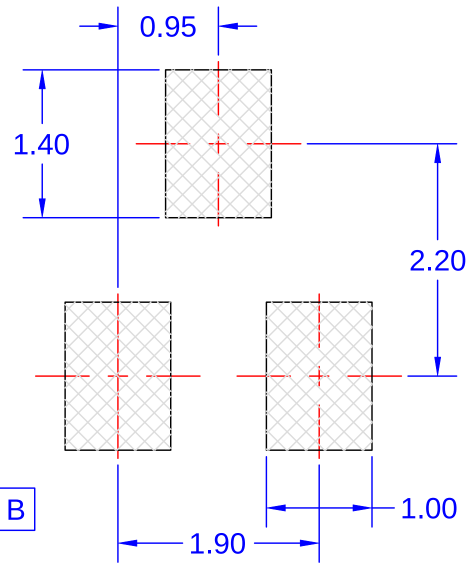
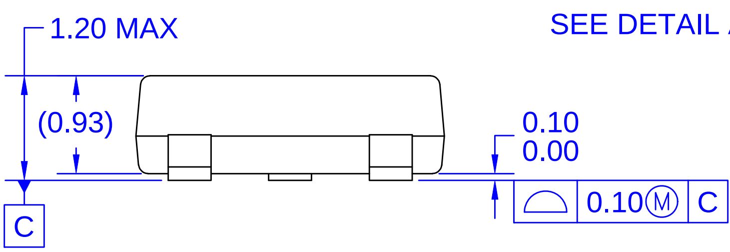


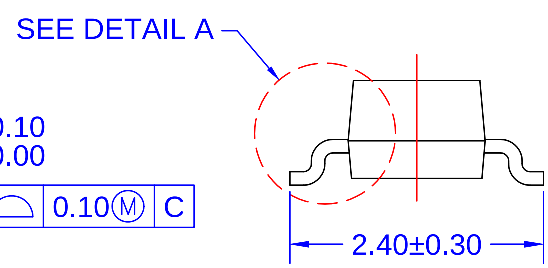
Figure 6. Power Dissipation vs. Ambient Temperature

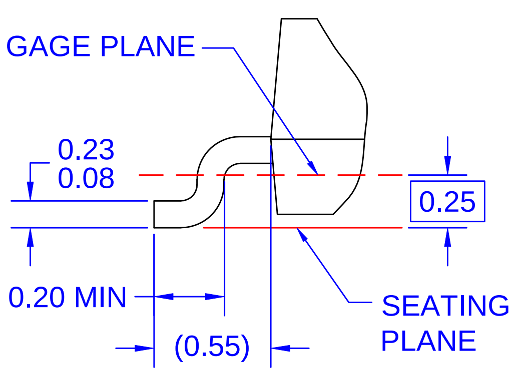




LAND PATTERN
RECOMMENDATION







DETAIL A
SCALE: 2X

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