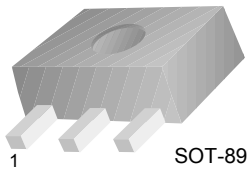
FAIRCHILD SEMICONDUCTOR®

July 2005

KSD1621
NPN Epitaxial Silicon Transistor

High Current Driver Applications

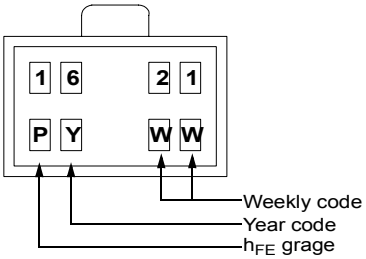
- Low Collector-Emitter Saturation Voltage
- Large Current Capacity and Wide SOA
- Fast Switching Speed
- Complement to KSB1121



SOT-89

1. Base 2. Collector 3. Emitter

Marking



Absolute Maximum Ratings T_a = 25°C unless otherwise noted

Symbol	Parameter	Ratings	Units
V_{CBO}	Collector-Base Voltage	30	V
V_{CEO}	Collector-Emitter Voltage	25	V
V_{EBO}	Emitter-Base Voltage	6	V
I_C	Collector Current	2	A
P_C P_C*	Collector Power Dissipation	500 1.3	mW W
T_J	Junction Temperature	150	°C
T_{STG}	Storage Temperature	-55 ~ 150	°C

Mounted on Ceramic Board (250mm^2 x 0.8mm)

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	30			V
BV_{CEO}	Collector-Emitter Breakdown Voltage	I_C = 1mA, I_B = 0	25			V
BV_{EBO}	Emitter-Base Breakdown Voltage	I_E = 10μA, I_C = 0	6			V
I_{CBO}	Collector Cut-off Current	V_{CB} = 20V, I_E = 0			100	nA
I_{EBO}	Emitter Cut-off Current	V_{BE} = 4V, I_C = 0			100	nA
h_{FE1} h_{FE2}	DC Current Gain	V_{CE} = 2V, I_C = 0.1A V_{CE} = 2V, I_C = 1.5A	100 65		560	
V_{CE} (sat)	Collector-Emitter Saturation Voltage	I_C = 1.5A, I_B = 75mA		0.18	0.4	V
V_{BE} (sat)	Base-Emitter Saturation Voltage	I_C = 1.5A, I_B = 75mA		0.85	1.2	V

Electrical Characteristics (Continued) T_a = 25°C unless otherwise noted

Symbol	Parameter	Test Condition	Min.	Typ.	Max.	Units
f_T	Current Gain Bandwidth product	V_{CE} = 10V, I_C = 50mA		150		MHz
C_{ob}	Output Capacitance	V_{CB} = 10V, I_E = 0, f = 1MHz		19		pF
t_{ON}	Turn On Time *	V_{CC} = 12V, V_{BE} = 5V I_{B1} = -I_{B2} = 25mA I_C = 0.5A, R_L = 25Ω		60		ns
t_{STG}	Storage Time *			500		ns
t_F	Fall Time *			25		ns

h_{FE} Classification

Classification	R	S	T	U
h_{FE}	100 ~ 200	140 ~ 280	200 ~ 400	280 ~ 560

Package Marking and Ordering Information

Device Marking	Device	Package	Reel Size	Tape Width	Quantity
1621	KSD1621	SOT-89	13”	--	4,000

Typical Performance Characteristics

Figure 1. Static Characteristic

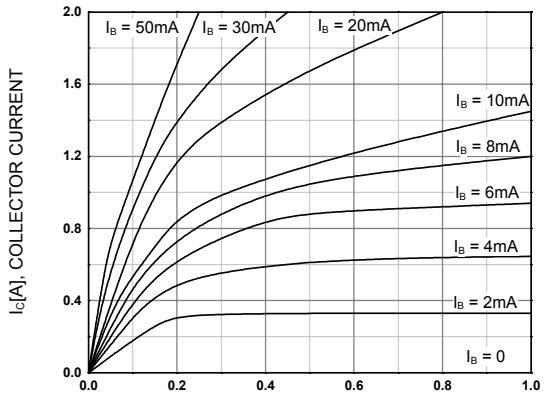


Figure 2. DC Current Gain

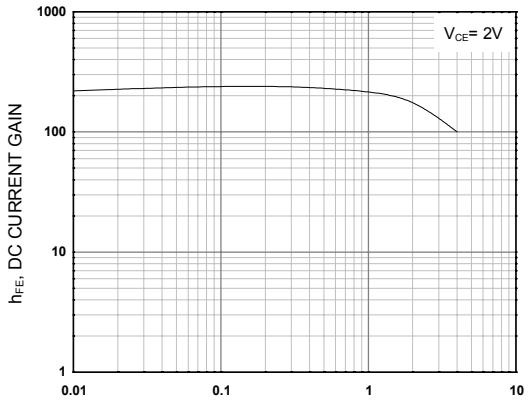


Figure 3. DCollector-Emitter Saturation Voltage

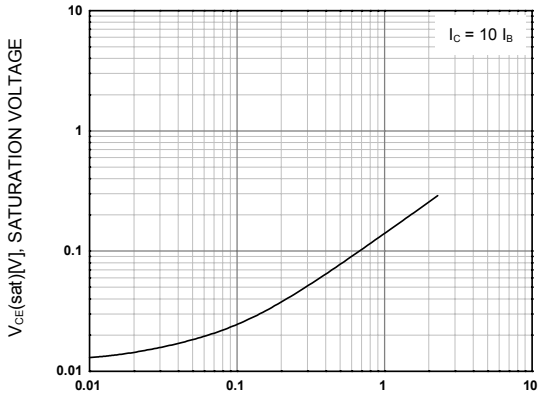


Figure 4. Base-Emitter On Voltage

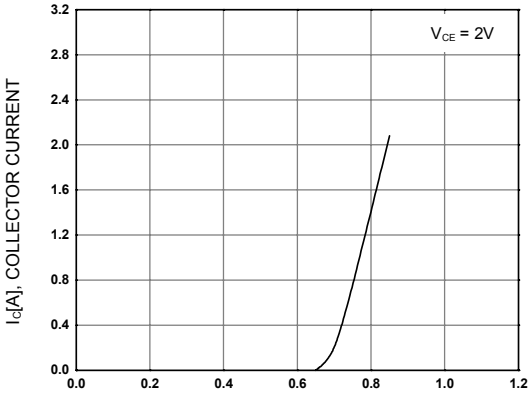


Figure 5. Collector Output Capacitance

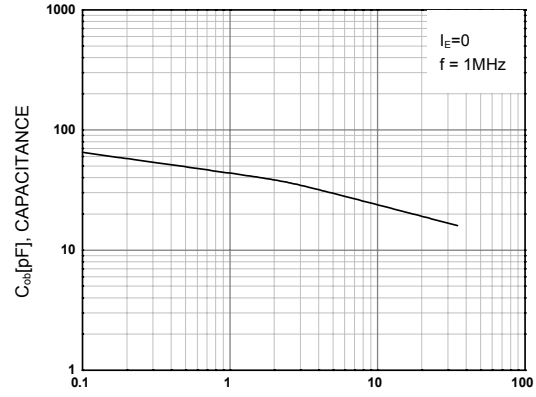
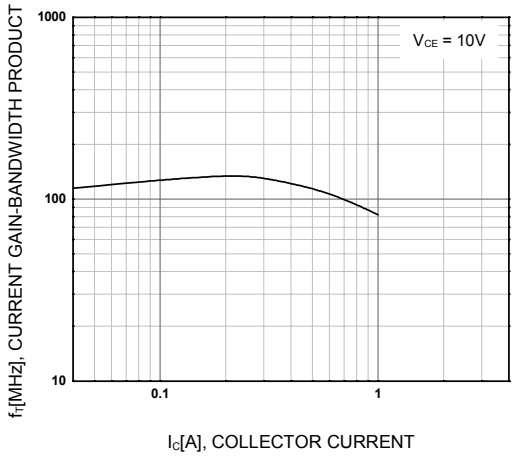


Figure 6. Current Gain Bandwidth Product



Typical Performance Characteristics (Continued)

Figure 7. Safe Operating Area

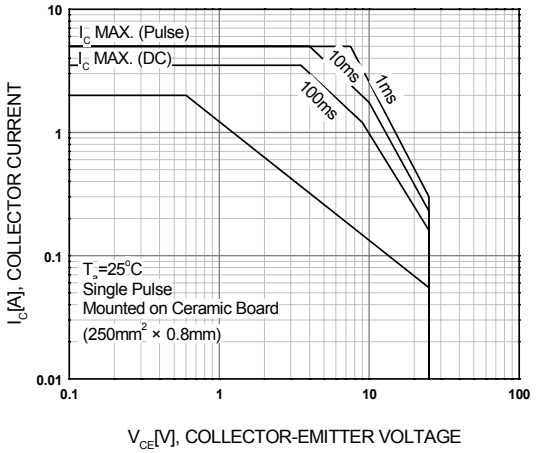
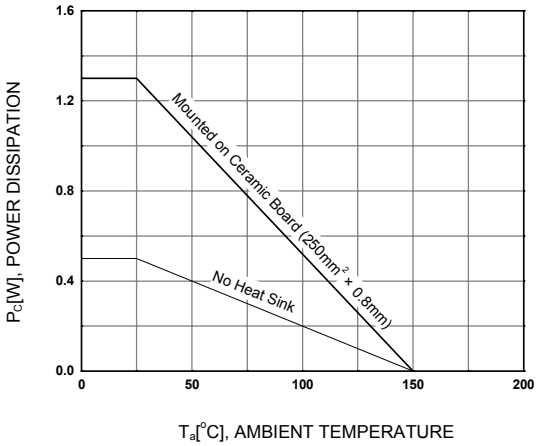
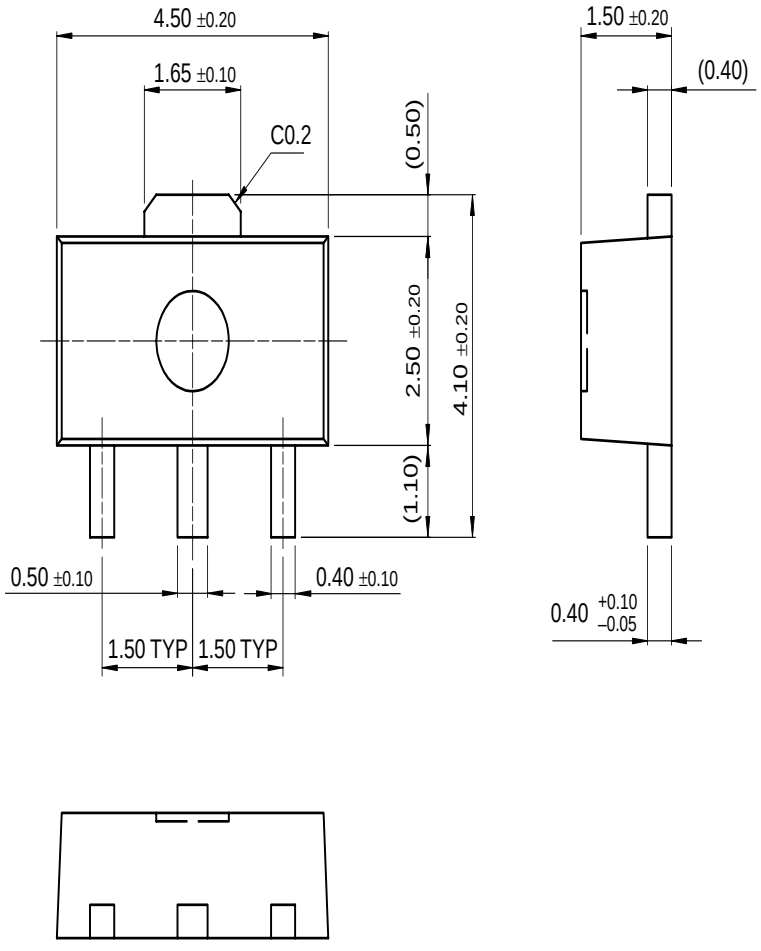


Figure 8. Power Derating



Mechanical Dimensions

SOT-89



Dimensions in Millimeters

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