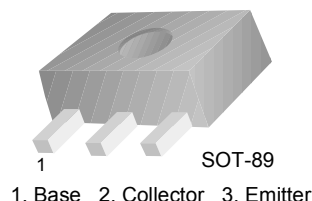


KSD1621

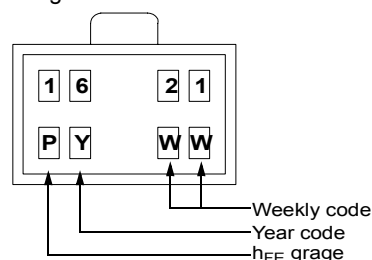
NPN Epitaxial Silicon Transistor

High Current Driver Applications

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



Marking



Absolute Maximum Ratings $T_a = 25^\circ\text{C}$ 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	$^\circ\text{C}$
T_{STG}	Storage Temperature	-55 ~ 150	$^\circ\text{C}$

Mounted on Ceramic Board (250mm² x 0.8mm)

Electrical Characteristics $T_a = 25^\circ\text{C}$ unless otherwise noted

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

Electrical Characteristics (Continued) $T_a = 25^\circ\text{C}$ unless otherwise noted

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

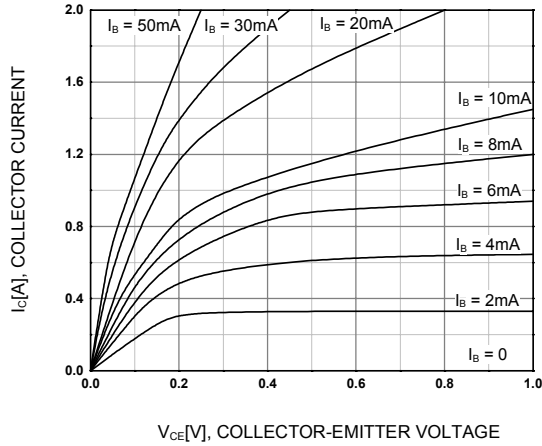


Figure 2. DC Current Gain

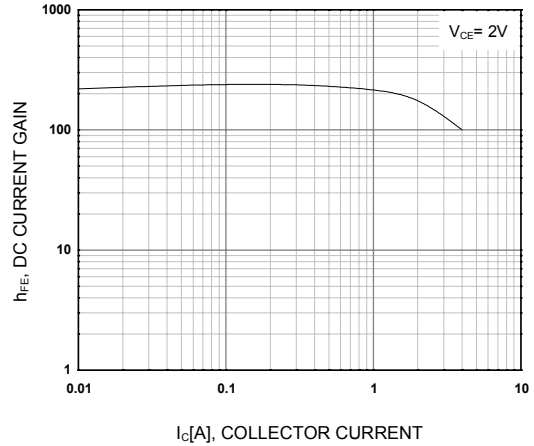


Figure 3. DCollector-Emitter Saturation Voltage

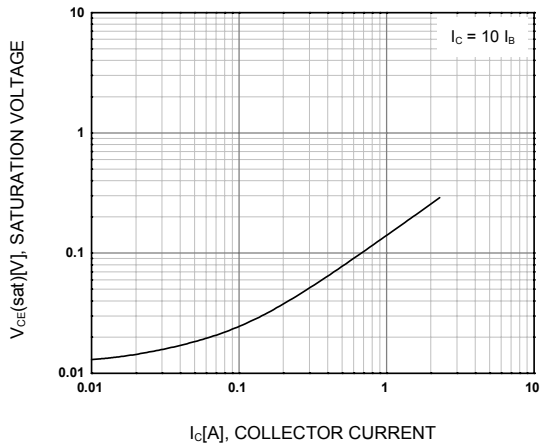


Figure 4. Base-Emitter On Voltage

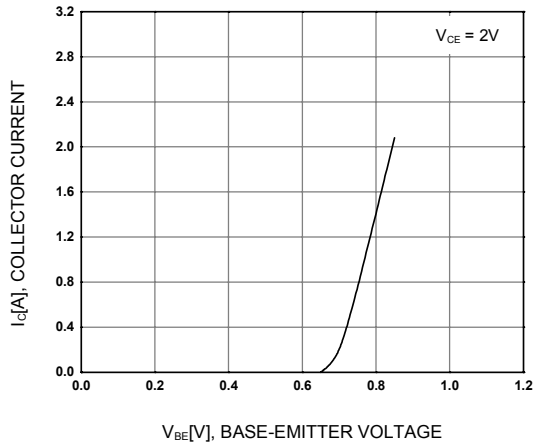


Figure 5. Collector Output Capacitance

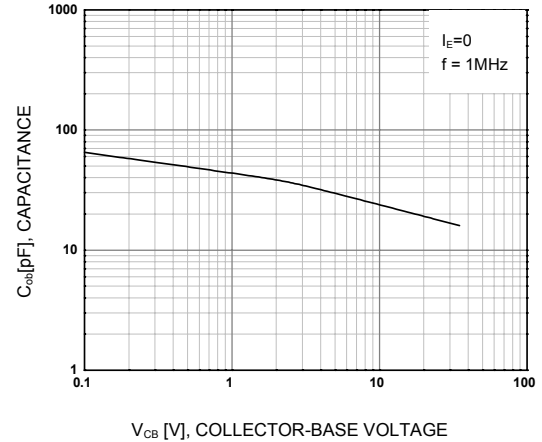
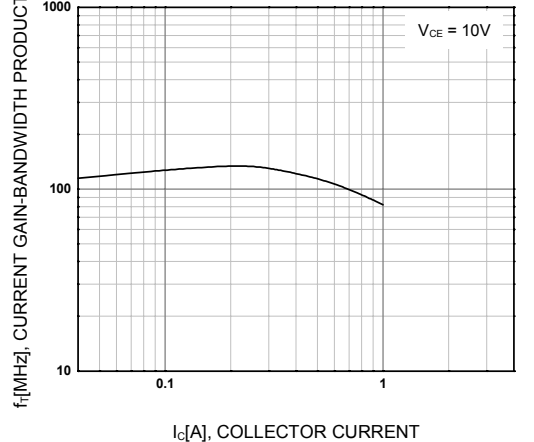


Figure 6. Current Gain Bandwidth Product



Typical Performance Characteristics (Continued)

Figure 7. Safe Operating Area

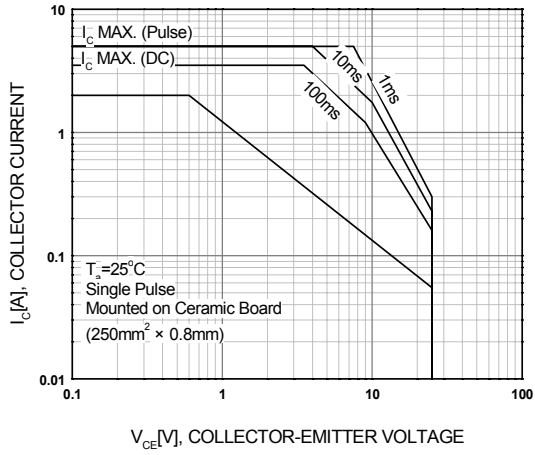
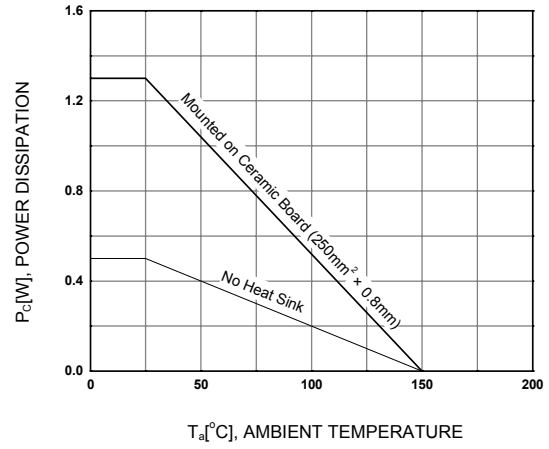


Figure 8. Power Derating



Technical drawing of a mechanical part showing three views: front, side, and top.

Front View Dimensions:

- Overall width: 4.50 ± 0.20
- Top feature width: 1.65 ± 0.10
- Top feature height: 0.50 (with a $C0.2$ chamfer)
- Main body height: 2.50 ± 0.20
- Base height: 4.10 ± 0.20
- Base feature height: 1.10
- Base feature width: 0.40 ± 0.10
- Base feature spacing: 1.50 TYP (typical)

Side View Dimensions:

- Overall width: 1.50 ± 0.20
- Base feature width: 0.40 (with a $+0.10 / -0.05$ tolerance)

Top View:

- Shows the top surface of the part with three rectangular features.

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No Identification Needed	Full Production	This datasheet contains final specifications. Fairchild Semiconductor reserves the right to make changes at any time without notice in order to improve design.
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