



**THE DATASHEET OF  
KSD1621UTF**

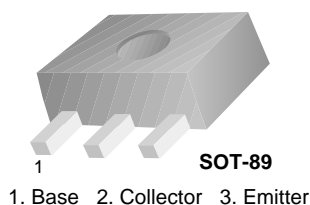


# KSD1621

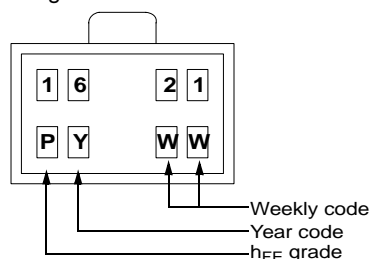
## NPN Epitaxial Silicon Transistor

### Features

- 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
$P_C$	Collector Power Dissipation ( $T_A = 25^\circ\text{C}$ ) Derating Rate above $25^\circ\text{C}$	500 4	mW mW/ $^\circ\text{C}$
$T_J$	Junction Temperature	150	$^\circ\text{C}$
$T_{STG}$	Storage Temperature	-55 to +150	$^\circ\text{C}$

Mounted on Ceramic Board ( $250\text{mm}^2 \times 0.8\text{mm}$ )

**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
$f_T$	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**

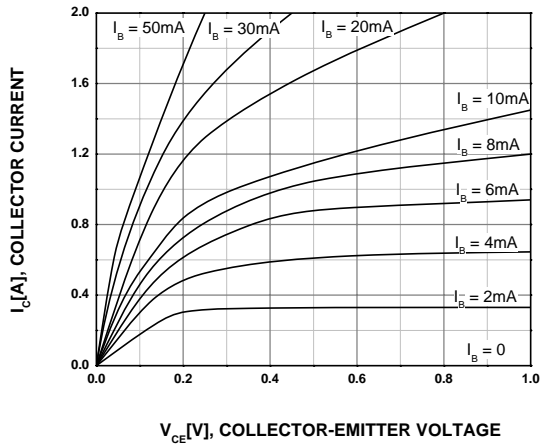
Classification	R	S	T	U
$h_{FE}$	100 ~ 200	140 ~ 280	200 ~ 400	280 ~ 560

**Package Marking and Ordering Information**

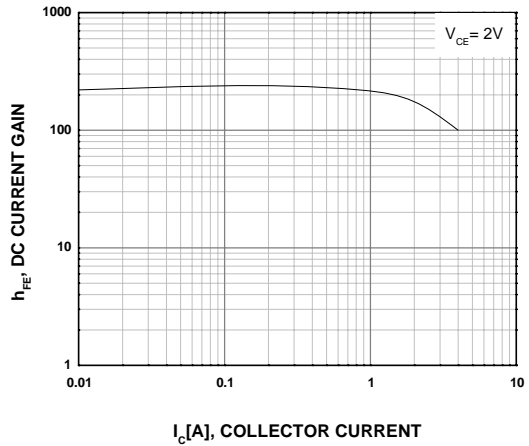
Device	Device Marking	Package	Reel Size	Tape Width	Quantity
KSD1621RTF	Line 1: 1621 Line 2: R&3	SOT-89	13"	--	4,000
KSD1621STF	Line 1: 1621 Line 2: S&3	SOT-89	13"	--	4,000
KSD1621TTF	Line 1: 1621 Line 2: T&3	SOT-89	13"	--	4,000
KSD1621UTF	Line 1: 1621 Line 2: U&3	SOT-89	13"	--	4,000

## Typical Performance Characteristics

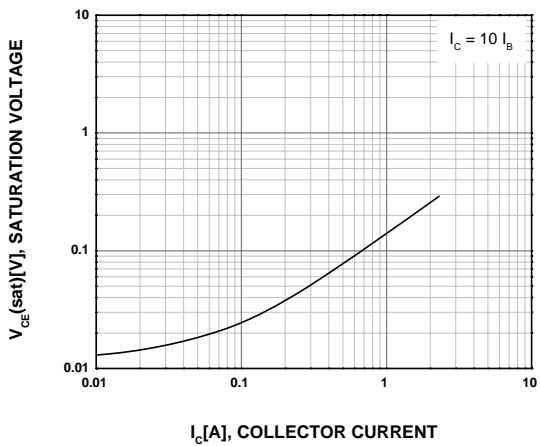
**Figure 1. Static Characteristic**



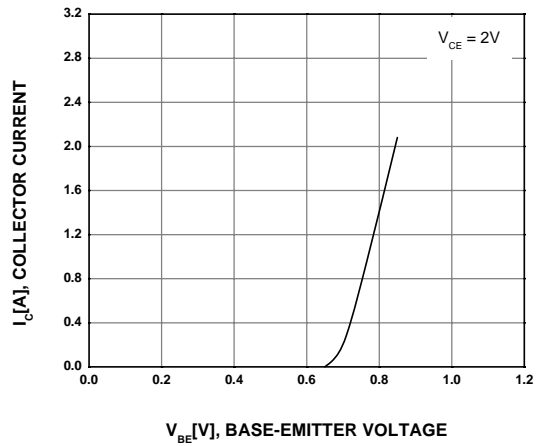
**Figure 2. DC Current Gain**



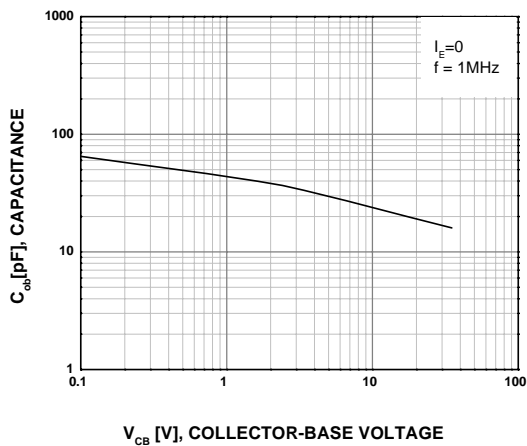
**Figure 3. Collector-Emitter Saturation Voltage**



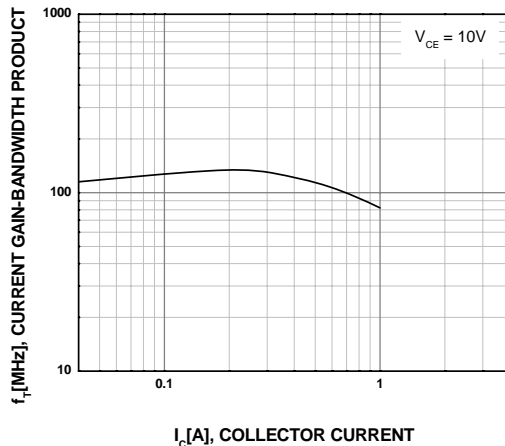
**Figure 4. Base-Emitter On Voltage**



**Figure 5. Collector Output Capacitance**

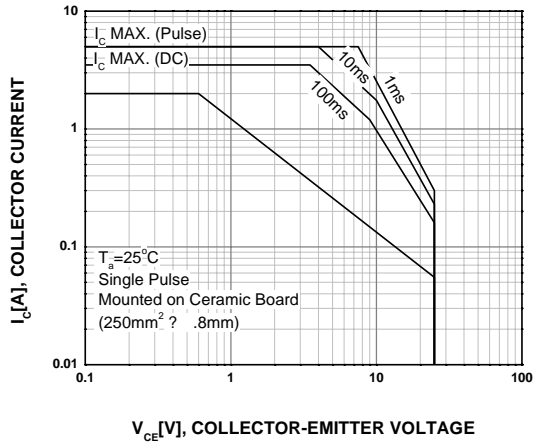


**Figure 6. Current Gain Bandwidth Product**

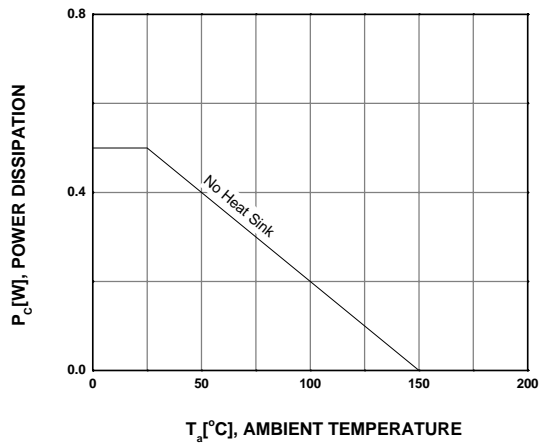


**Typical Performance Characteristics** (Continued)

**Figure 7. Safe Operating Area**

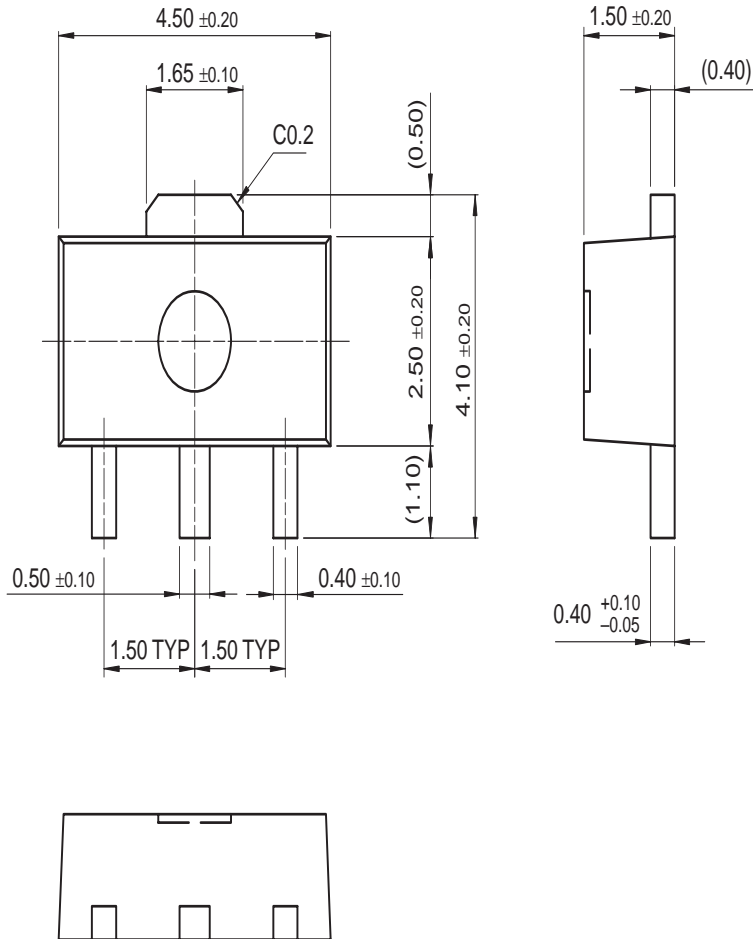


**Figure 8. Power Derating**



Mechanical Dimensions

SOT-89






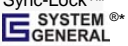


Dimensions in Millimeters



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