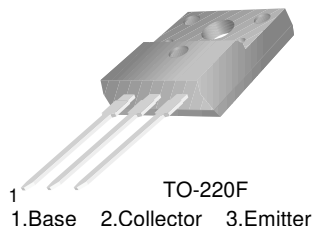


# KSD1589

KSD1589

## Low Frequency Power Amplifier Low Speed Switching Industrial Use

- Complement to KSB1098

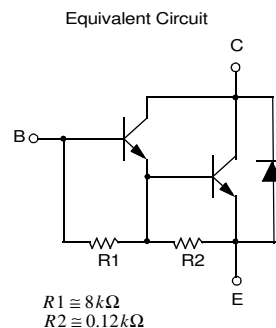


## NPN Silicon Darlington Transistor

### Absolute Maximum Ratings $T_C=25^\circ\text{C}$ unless otherwise noted

Symbol	Parameter	Value	Units
$V_{CBO}$	Collector-Base Voltage	150	V
$V_{CEO}$	Collector-Emitter Voltage	100	V
$V_{EBO}$	Emitter-Base Voltage	7	V
$I_C$	Collector Current (DC)	5	A
$I_{CP}$	*Collector Current (Pulse)	8	A
$I_B$	Base Current	0.5	A
$P_C$	Collector Dissipation ( $T_a=25^\circ\text{C}$ )	1.5	W
	Collector Dissipation ( $T_C=25^\circ\text{C}$ )	20	W
$T_J$	Junction Temperature	150	$^\circ\text{C}$
$T_{STG}$	Storage Temperature	- 55 ~ 150	$^\circ\text{C}$

\*  $PW \leq 10\text{ms}$ , Duty Cycles  $\leq 50\%$



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

Symbol	Parameter	Test Condition	Min.	Typ.	Max.	Units
$I_{CBO}$	Collector Cut-off Current	$V_{CB} = 100\text{V}$ , $I_E = 0$			1	$\mu\text{A}$
$h_{FE1}$	*DC Current Gain	$V_{CE} = 2\text{V}$ , $I_C = 3\text{A}$	2K	6K	15K	
$h_{FE2}$		$V_{CE} = 2\text{V}$ , $I_C = 5\text{A}$	500			
$V_{CE(sat)}$	*Collector-Emitter Saturation Voltage	$I_C = 3\text{A}$ , $I_B = 3\text{mA}$		0.9	1.5	V
$V_{BE(sat)}$	Base-Emitter Saturation Voltage	$I_C = 3\text{A}$ , $I_B = 3\text{mA}$		1.6	2	V
$t_{ON}$	Turn On Time	$V_{CC} = 50\text{V}$ , $I_C = 3\text{A}$ $I_{B1} = - I_{B2} = 3\text{mA}$ $R_L = 16.7\Omega$		1		$\mu\text{s}$
$t_{stg}$	Storage Time			3.5		$\mu\text{s}$
$t_f$	Fall Time				1.2	$\mu\text{s}$

\* Pulse Test:  $PW \leq 350\mu\text{s}$ , Duty Cycle  $\leq 2\%$  Pulsed

### $h_{FE}$ Classification

Classification	R	O	Y
$h_{FE1}$	2000 ~ 5000	3000 ~ 7000	5000 ~ 15000

# Typical Characteristics

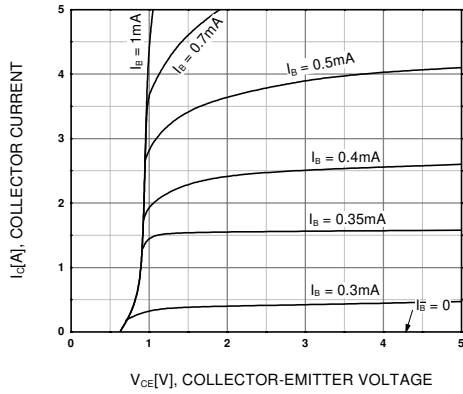


Figure 1. Static Characteristic

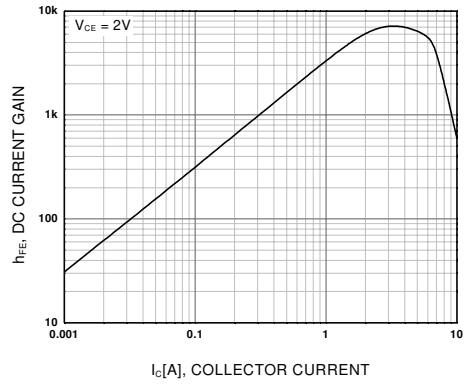


Figure 2. DC current Gain

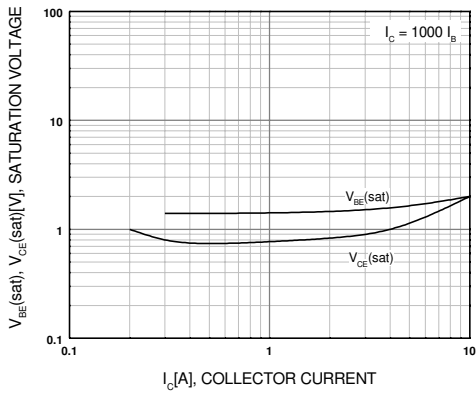


Figure 3. Base-Emitter Saturation Voltage  
Collector-Emitter Saturation Voltage

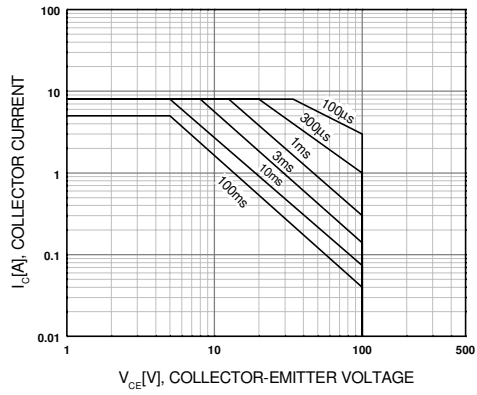


Figure 4. Safe Operating Area

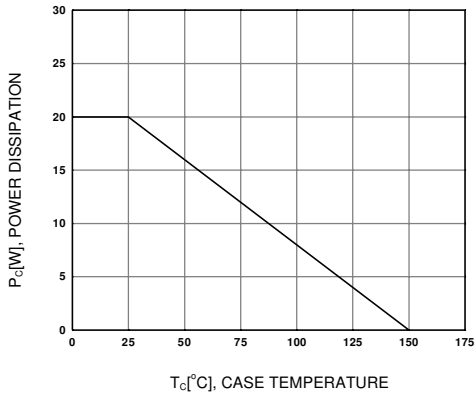


Figure 5. Power Derating



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