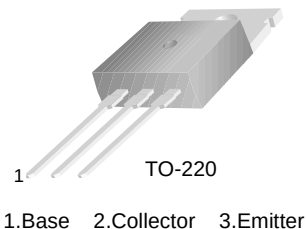


KSC5027

KSC5027

High Voltage and High Reliability

- High Speed Switching
- Wide SOA



NPN Silicon Transistor

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

Symbol	Parameter	Value	Units
V_{CBO}	Collector-Base Voltage	1100	V
V_{CEO}	Collector-Emitter Voltage	800	V
V_{EBO}	Emitter-Base Voltage	7	V
I_C	Collector Current (DC)	3	A
I_{CP}	Collector Current (Pulse)	10	A
I_B	Base Current	1.5	A
P_C	Collector Dissipation ($T_C=25^\circ\text{C}$)	50	W
T_J	Junction Temperature	150	$^\circ\text{C}$
T_{STG}	Storage Temperature	- 55 ~ 150	$^\circ\text{C}$

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

Symbol	Parameter	Test Condition	Min.	Typ.	Max.	Units
BV_{CBO}	Collector-Base Breakdown Voltage	$I_C = 1\text{mA}, I_E = 0$	1100			V
BV_{CEO}	Collector-Emitter Breakdown Voltage	$I_C = 5\text{mA}, I_B = 0$	800			V
BV_{EBO}	Emitter-Base Breakdown Voltage	$I_E = 1\text{mA}, I_C = 0$	7			V
$V_{CEX(sus)}$	Collector-Emitter Sustaining Voltage	$I_C = 1.5\text{A}, I_{B1} = -I_{B2} = 0.3\text{A}$ $L = 2\text{mH}$, Clamped	800			V
I_{CBO}	Collector Cut-off Current	$V_{CB} = 800\text{V}, I_E = 0$			10	μA
I_{EBO}	Emitter Cut-off Current	$V_{EB} = 5\text{V}, I_C = 0$			10	μA
h_{FE1} h_{FE2}	DC Current Gain	$V_{CE} = 5\text{V}, I_C = 0.2\text{A}$ $V_{CE} = 5\text{V}, I_C = 1\text{A}$	10 8		40	
$V_{CE(sat)}$	Collector-Emitter Saturation Voltage	$I_C = 1.5\text{A}, I_B = 0.3\text{A}$			2	V
$V_{BE(sat)}$	Base-Emitter Saturation Voltage	$I_C = 1.5\text{A}, I_B = 0.3\text{A}$			1.5	V
C_{ob}	Output Capacitance	$V_{CB} = 10\text{V}, I_E = 0, f = 1\text{MHz}$		60		pF
f_T	Current Gain Bandwidth Product	$V_{CE} = 10\text{V}, I_C = 0.2\text{A}$		15		MHz
t_{ON}	Turn ON Time	$V_{CC} = 400\text{V}$ $I_C = 5I_{B1} = -2.5I_{B2} = 2\text{A}$ $R_L = 200\Omega$			0.5	μs
t_{STG}	Storage Time				3	μs
t_F	Fall Time				0.3	μs

h_{FE} Classification

Classification	N	R	O
h_{FE1}	10 ~ 20	15 ~ 30	20 ~ 40

Typical Characteristics

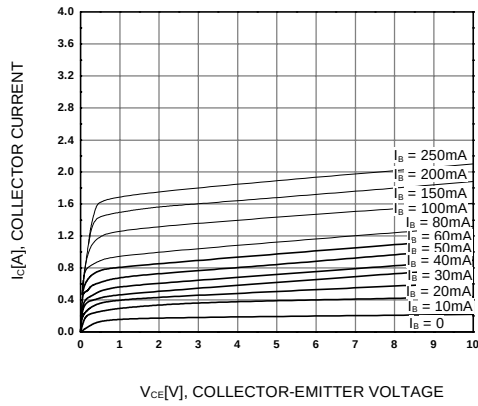


Figure 1. Static Characteristic

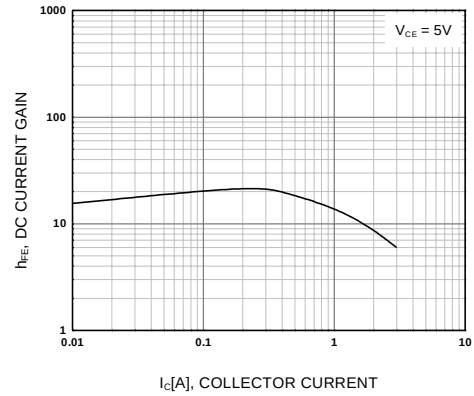


Figure 2. DC current Gain

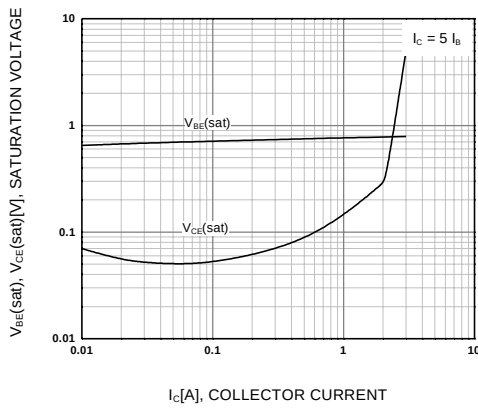


Figure 3. Base-Emitter Saturation Voltage
Collector-Emitter Saturation Voltage

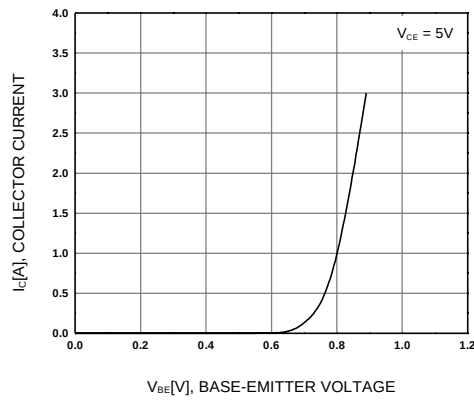


Figure 4. Base-Emitter On Voltage

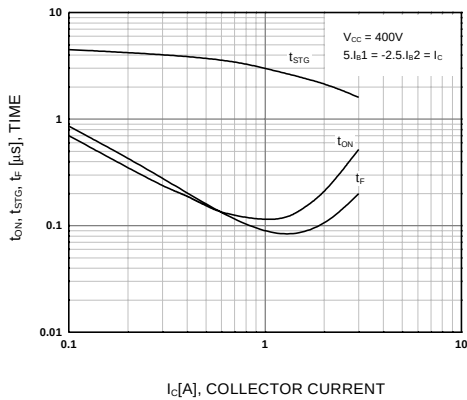


Figure 5. Switching Time

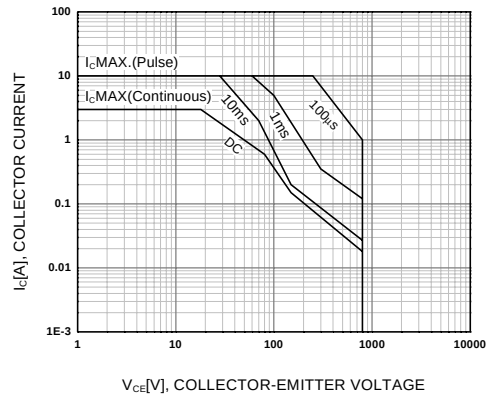


Figure 6. Safe Operating Area

Typical Characteristics (Continued)

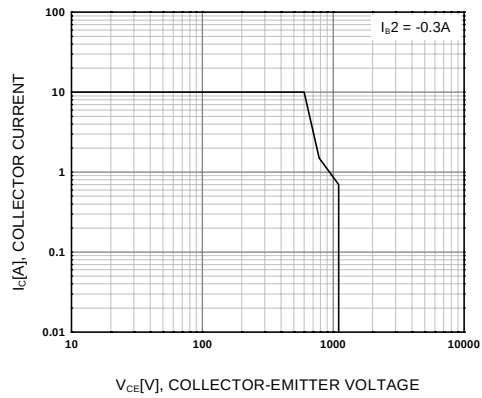


Figure 7. Reverse Bias Operating Area

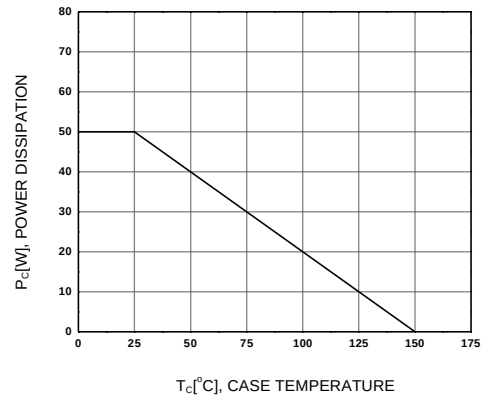


Figure 8. Power Derating

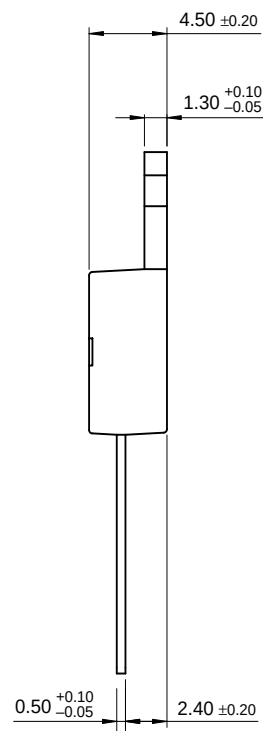
Technical drawing of a mechanical part, likely a connector or probe, showing front and top views with dimensions in millimeters.

Front View Dimensions:

- Overall width: 9.90 ± 0.20
- Top hole diameter: $\varnothing 3.60 \pm 0.10$
- Top hole offset from left edge: 1.30 ± 0.10
- Top hole offset from right edge: 2.80 ± 0.10
- Top hole diameter (alternative): (8.70)
- Top hole offset from center (alternative): (1.70)
- Top hole offset from bottom edge: 15.90 ± 0.20
- Top hole offset from bottom edge (alternative): (3.00)
- Top hole offset from bottom edge (alternative): (3.70)
- Top hole offset from bottom edge (alternative): 18.95 MAX.
- Top hole offset from bottom edge (alternative): 10.08 ± 0.30
- Top hole offset from bottom edge (alternative): (1.00)
- Top hole offset from bottom edge (alternative): (1.46)
- Top hole offset from bottom edge (alternative): 9.20 ± 0.20
- Top hole offset from bottom edge (alternative): (1.70)

Top View Dimensions:

- Overall width: 10.00 ± 0.20
- Top hole diameter: $\varnothing 3.60 \pm 0.10$
- Top hole offset from left edge: 1.27 ± 0.10
- Top hole offset from right edge: 1.52 ± 0.10
- Top hole offset from center: 0.80 ± 0.10
- Top hole offset from bottom edge: 2.54 TYP
- Top hole offset from bottom edge (alternative): $[2.54 \pm 0.20]$
- Top hole offset from bottom edge (alternative): 2.54 TYP
- Top hole offset from bottom edge (alternative): $[2.54 \pm 0.20]$



Rev. A1, June 2001

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