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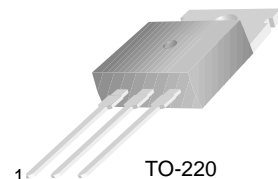
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# KSE13003T

KSE13003T

## High Voltage Switch Mode Applications

- High Speed Switching
- Suitable for Switching Regulator and Motor Control



1.Base 2.Collector 3.Emitter

## NPN Silicon Transistor

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

Symbol	Parameter	Value	Units
$V_{CBO}$	Collector-Base Voltage	700	V
$V_{CEO}$	Collector-Emitter Voltage	400	V
$V_{EBO}$	Emitter-Base Voltage	9	V
$I_C$	Collector Current (DC)	1.5	A
$I_{CP}$	Collector Current (Pulse)	3	A
$I_B$	Base Current	0.75	A
$P_C$	Collector Dissipation ( $T_C=25^\circ\text{C}$ )	30	W
$T_J$	Junction Temperature	150	$^\circ\text{C}$
$T_{STG}$	Storage Temperature	- 65 ~ 150	$^\circ\text{C}$

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

Symbol	Parameter	Test Condition	Min.	Typ.	Max.	Units
$BV_{CEO}$	Collector-Emitter Breakdown Voltage	$I_C = 5\text{mA}, I_B = 0$	400			V
$I_{EBO}$	Emitter Cut-off Current	$V_{EB} = 9\text{V}, I_C = 0$			10	$\mu\text{A}$
$h_{FE}$	*DC Current Gain	$V_{CE} = 2\text{V}, I_C = 0.5\text{A}$ $V_{CE} = 2\text{V}, I_C = 1\text{A}$	8 5		40	
$V_{CE(sat)}$	*Collector Emitter Saturation Voltage	$I_C = 0.5\text{A}, I_B = 0.1\text{A}$ $I_C = 1\text{A}, I_B = 0.25\text{A}$ $I_C = 1.5\text{A}, I_B = 0.5\text{A}$			0.5 1 3	V V V
$V_{BE(sat)}$	*Base Emitter Saturation Voltage	$I_C = 0.5\text{A}, I_B = 0.1\text{A}$ $I_C = 1\text{A}, I_B = 0.25\text{A}$			1 1.2	V V
$C_{ob}$	Output Capacitance	$V_{CB} = 10\text{V}, f = 0.1\text{MHz}$		21		pF
$f_T$	Current Gain Bandwidth Product	$V_{CE} = 10\text{V}, I_C = 0.1\text{A}$	4			MHz
$t_{ON}$	Turn On Time	$V_{CC} = 125\text{V}, I_C = 1\text{A}$			1.1	$\mu\text{s}$
$t_{STG}$	Storage Time	$I_{B1} = 0.2\text{A}, I_{B2} = -0.2\text{A}$			4.0	$\mu\text{s}$
$t_F$	Fall Time	$R_L = 125\Omega$			0.7	$\mu\text{s}$

\* Pulse Test: Pulse Width=5ms, Duty Cycle≤10%

## Typical Characteristics

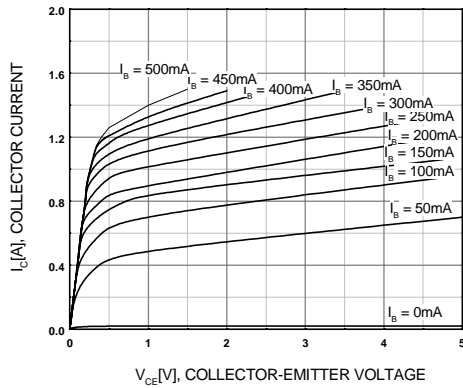


Figure 1. Static Characteristic

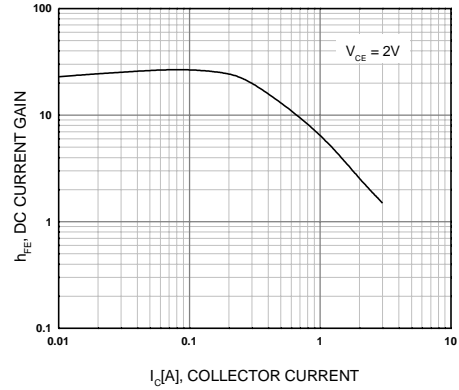


Figure 2. DC current Gain

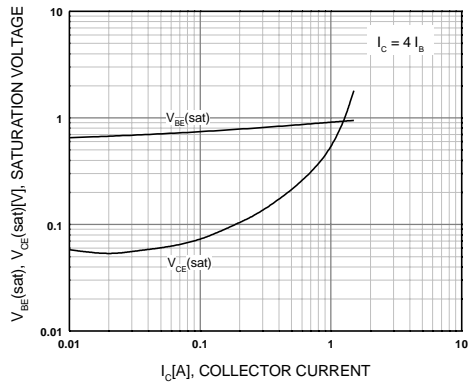


Figure 3. Base-Emitter Saturation Voltage  
Collector-Emitter Saturation Voltage

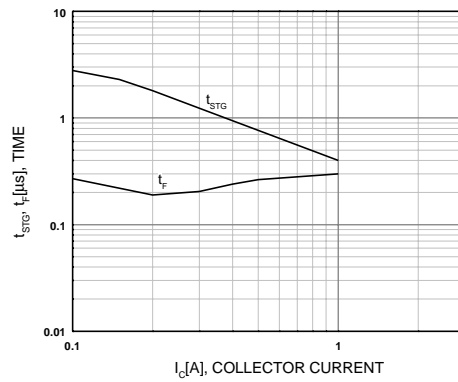


Figure 4. Switching Time

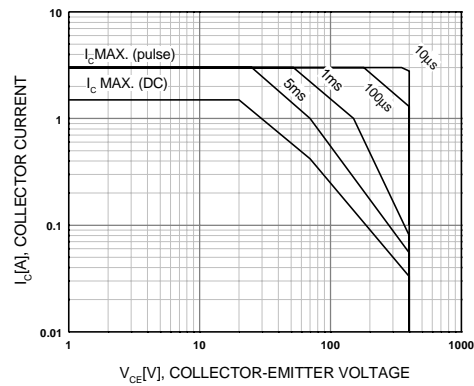


Figure 5. Safe Operating Area

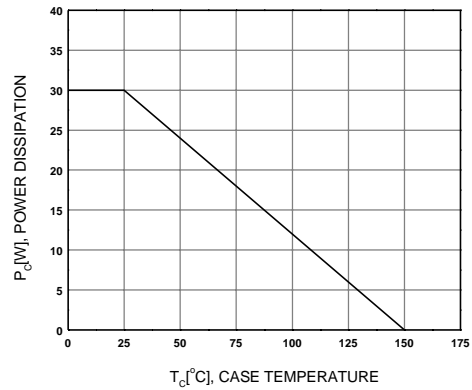
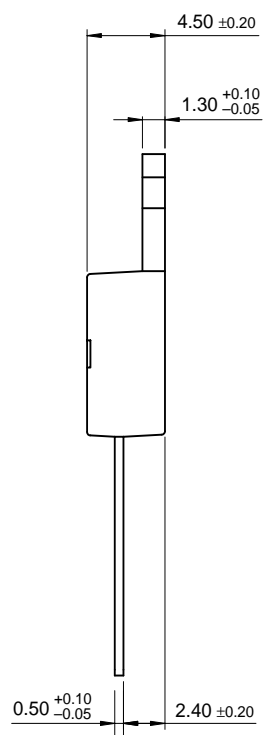
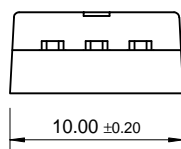


Figure 6. Power Derating

Technical drawing of a 2.54TYP connector. The drawing shows a side view of the component with various dimensions in millimeters. The overall width is 9.90 ±0.20, with a central hole diameter of Ø3.60 ±0.10. The total height is 18.95 MAX. The drawing includes dimensions for the top section (1.70, 1.30 ±0.10, 2.80 ±0.10), the main body (9.20 ±0.20, 1.46, 3.00, 3.70, 15.90 ±0.20), and the bottom section (13.08 ±0.20, 1.00, 1.27 ±0.10, 1.52 ±0.10, 10.08 ±0.30). The bottom section features three pins with a 45° chamfer and a width of 0.80 ±0.10. The drawing is labeled 2.54TYP at the bottom.



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