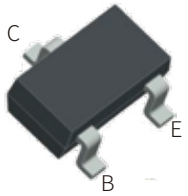
# FEATURES

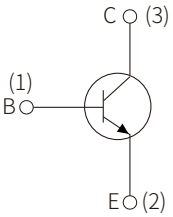
- SOT-523 Package
- Epoxy meets UL-94 V-0 flammability rating and halogen free



SOT-523

# APPROVALS

| | |
|---|---|
| **RoHS** | Compliance with 2011/65/EU |
| **HF** | Compliance with IEC61249-2-21:2003 |



Schematic Symbol

# MAXIMUM RATINGS ($T_A$=25°C )

| Parameter | Symbol | Value | Unit |
|---|---|---|---|
| Collector-Base Voltage | $V_{CBO}$ | 40 | V |
| Collector-Emitter Voltage | $V_{CEO}$ | 25 | |
| Emitter-Base Voltage | $V_{EBO}$ | 5 | |
| Collector Current | $I_C$ | 1500 | mA |
| Collector Power Dissipation | $P_C$ | 250 | mW |
| Thermal Resistance From Junction To Ambient | $R_{\theta JA}$ | 500 | °C/W |
| Junction Temperature Range | $T_J$ | -55~+150 | °C |
| Storage Temperature Range | $T_{STG}$ | -55~+150 | °C |

# ELECTRICAL CHARACTERISTICS ($T_A$=25°C)

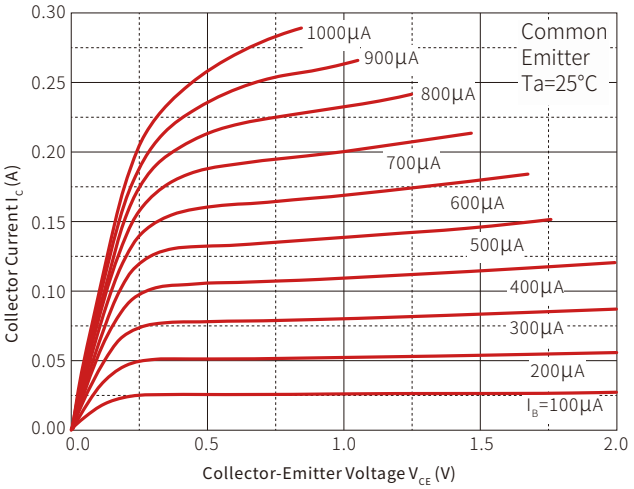
| Parameter | Symbol | Test Conditions | Min. | Typ. | Max. | Unit |
|---|---|---|---|---|---|---|
| Collector-Base Breakdown Voltage | $V_{(BR)CBO}$ | $I_C$=100μA,$I_E$=0 | 40 | | | V |
| Collector-Emitter Breakdown Voltage | $V_{(BR)CEO}$ | $I_C$=0.1mA,$I_B$=0 | 25 | | | |
| Emitter-Base Breakdown Voltage | $V_{(BR)EBO}$ | $I_E$=100μA,$I_C$=0 | 5 | | | |
| Collector cut-off current | $I_{CBO}$ | $V_{CB}$= 40V, $I_E$=0 | | | 100 | nA |
| Collector cut-off current | $I_{CEO}$ | $V_{CE}$= 20V, $I_B$=0 | | | 100 | |
| Emitter cut-off current | $I_{EBO}$ | $V_{EB}$=5V, $I_C$=0 | | | 100 | |
| DC Current Gain | $h_{FE}$ | $V_{CE}$=1V, $I_C$=100mA | 120 | | 400 | |
| | | $V_{CE}$=1V, $I_C$=800mA | 40 | | | |
| Collector-emitter saturation voltage | $V_{CE(sat)}$ | $I_C$=800mA, $I_B$=80mA | | | 0.50 | V |
| Base-emitter saturation voltage | $V_{BE(sat)}$ | $I_C$=800mA, $I_B$=80mA | | | 1.20 | V |
| Transition frequency | $f_T$ | $V_{CE}$=10V, $I_C$=50mA,f=30MHz | 100 | | | MHz |
| Collector output capacitance | $C_{ob}$ | $V_{CB}$=10V, $I_E$=0 ,f=1MHz | | | 15 | pF |

# CLASSIFICATION OF $H_{FE(1)}$

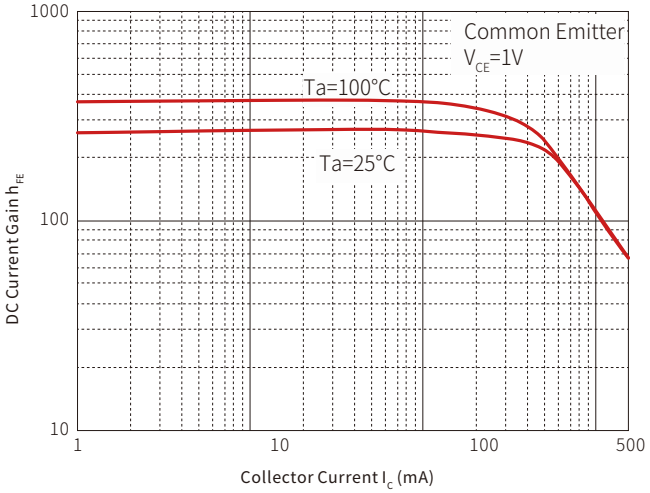
| Rank | L | H | J |
|---|---|---|---|
| Range | 120-200 | 200-350 | 300-400 |

# TYPICAL CHARACTERISTICS

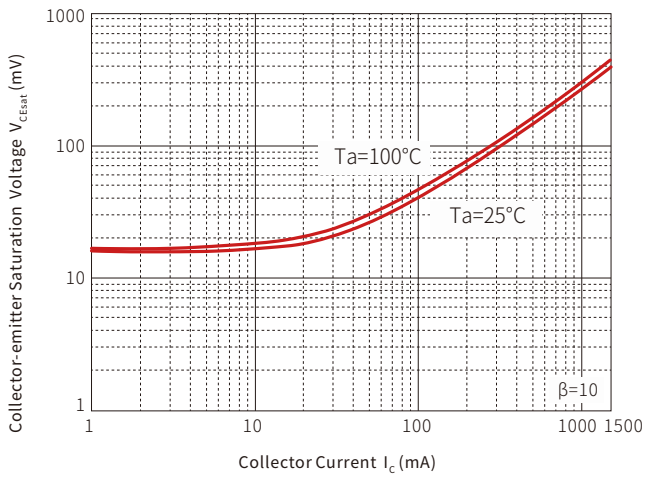
Static Characteristic



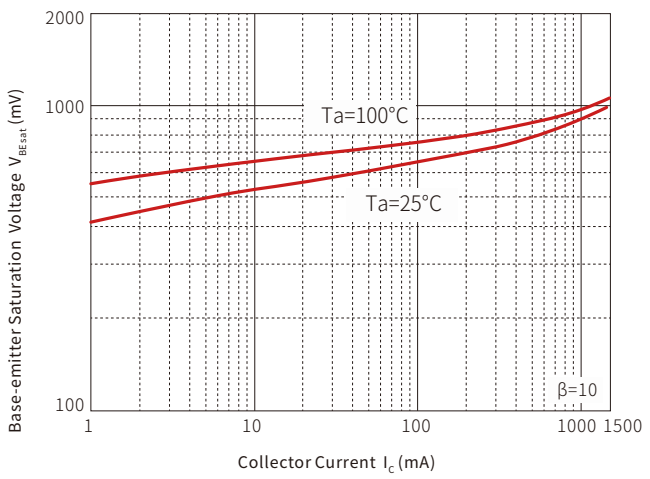

$h_{FE}$ ——— $I_C$



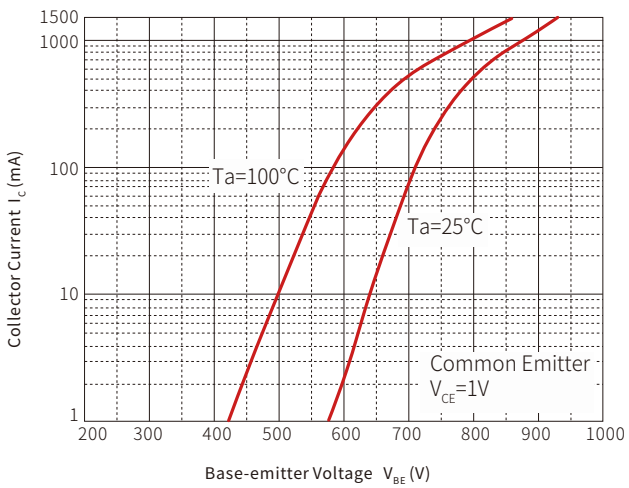

$V_{CE\ sat}$ ——— $I_C$



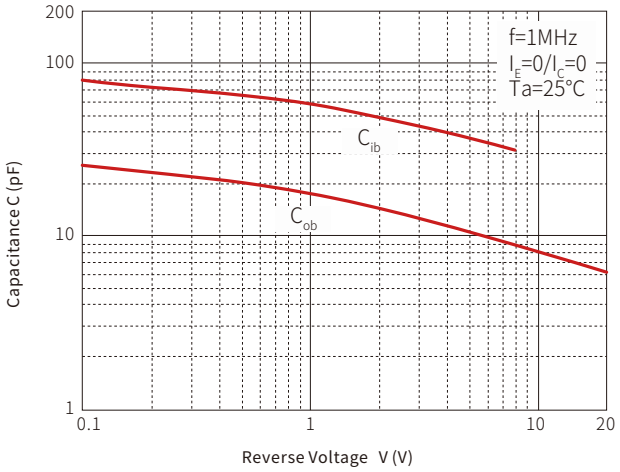

$V_{BE\ sat}$ ——— $I_C$



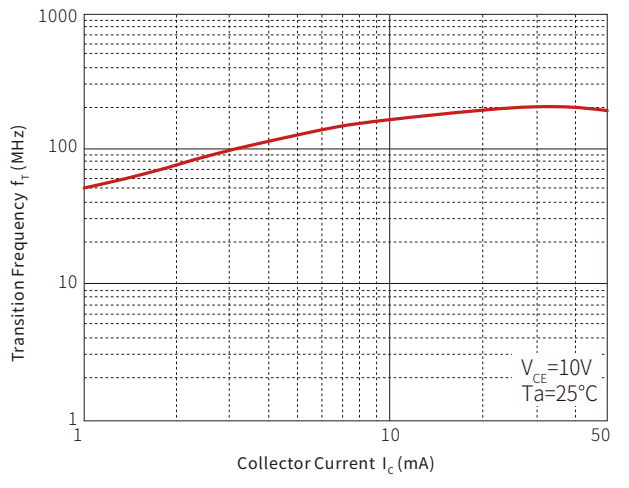
$I_C$ ——— $V_{BE}$



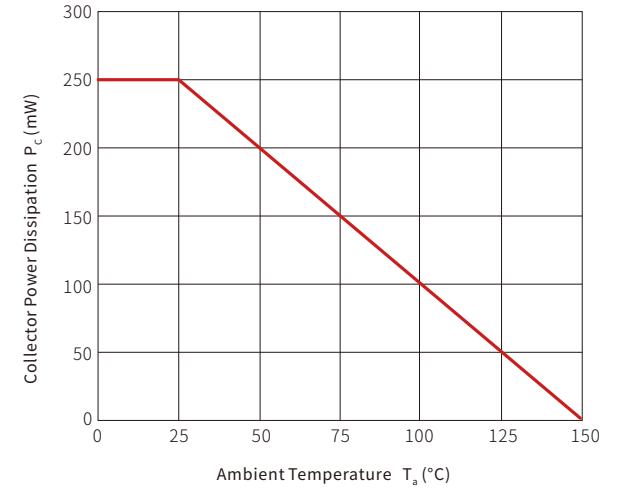

$C_{ob}/C_{ib}$ ——— $V_{CB}/V_{EB}$




$f_T$ ——— $I_C$

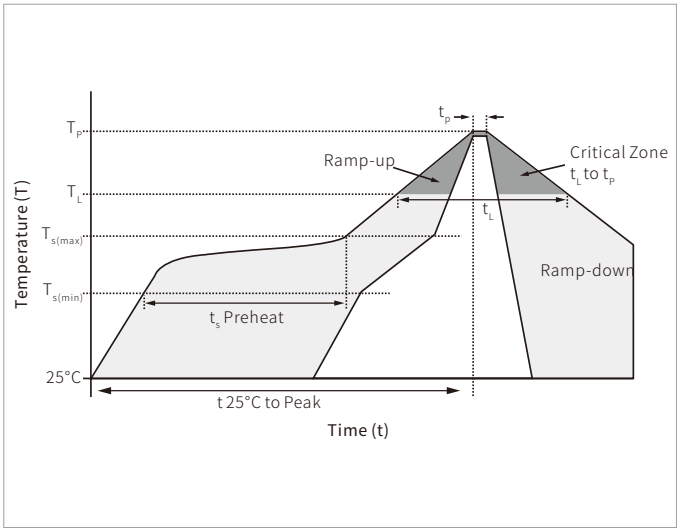



$P_C$ ——— $T_a$

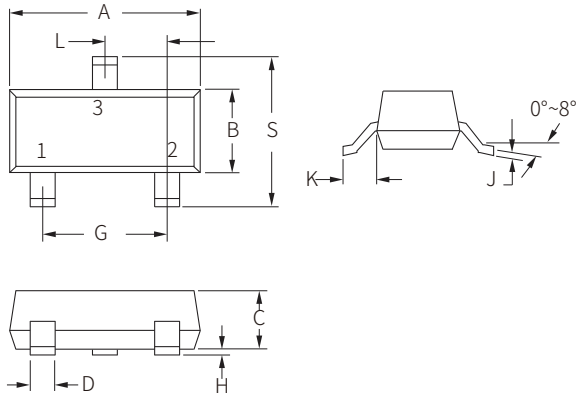


# SOLDERING PARAMETERS

| Reflow Condition | | Lead–free assembly |
|---|---|---|
| Pre Heat | Temperature Max ($T_{s(min)}$) | 150°C |
| | Temperature Max ($T_{s(max)}$) | 200°C |
| | Time (min to max) ($t_s$) | 60 – 180 secs |
| Average ramp up rate (Liquidus Temp ($T_L$) to peak | | 3°C/second max |
| $T_{s(max)}$ to $T_L$ - Ramp-up Rate | | 3°C/second max |
| Reflow | Temperature ($T_L$) (Liquidus) | 217°C |
| | Time (min to max) ($t_L$) | 60 – 150 seconds |
| Peak Temperature ($T_P$) | | 260°C |
| Time within 5°C of actual peak Temperature ($t_p$) | | 20 – 40 seconds |
| Ramp-down Rate | | 6°C/second max |
| Time 25°C to peak Temperature ($T_P$) | | 8 minutes max. |
| Do not exceed | | 260°C |

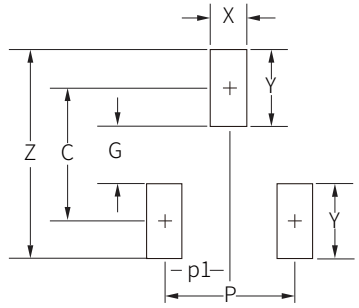



# SOT-523 PACKAGE INFORMATION




| Ref. | Millimeters | | Inches | |
|---|---|---|---|---|
| | Min. | Max. | Min. | Max. |
| A | 1.50 | 1.70 | 0.059 | 0.067 |
| B | 0.70 | 0.90 | 0.028 | 0.035 |
| C | 0.60 | 0.90 | 0.023 | 0.035 |
| D | 0.15 | 0.30 | 0.005 | 0.012 |
| G | 1.00BSC | | 0.039BSC | |
| H | 0.00 | 0.10 | 0.000 | 0.004 |
| J | 0.10 | 0.20 | 0.004 | 0.008 |
| K | (0.22) | | (0.009) | |
| L | 0.50BSC | | 0.020BSC | |
| S | 1.45 | 1.75 | 0.057 | 0.069 |

# RECOMMENDED PAD LAYOUT DIMENSIONS




| Ref. | Millimeters | Inches |
|---|---|---|
| C | (1.40) | (0.055) |
| P | 1.00 | 0.039 |
| p1 | 0.50 | 0.020 |
| G | 0.60 | 0.024 |
| X | 0.40 | 0.016 |
| Y | 0.80 | 0.031 |
| Z | 2.20 | 0.087 |

# ORDERING INFORMATION

| Part Number | Component Package | Marking | QTY/Reel | Reel Size |
|---|---|---|---|---|
| SS8050T | SOT-523 | Y1 | 3000PCS | 7” |

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