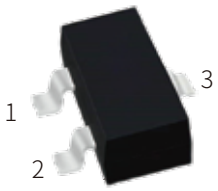
# FEATURES

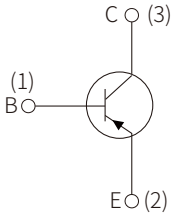
- Complementary pair with SS8050Q
- Meet AEC-Q101 Requirements



SOT-23

# APPLICATIONS

- Power amplifier applications
- Meet the stringent requirements of automotive applications



Schematic Symbol

# APPROVALS

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

# 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 | $V_{EBO}$ | -6.0 | |
| Collector Current | $I_C$ | -1.5 | A |
| Base Current | $I_B$ | -0.5 | A |
| Collector Power Dissipation | $P_C$ | 300 | mW |
| Junction Temperature | $T_J$ | 150 | °C |
| Storage Temperature Range | $T_{STG}$ | -55~+150 | °C |

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

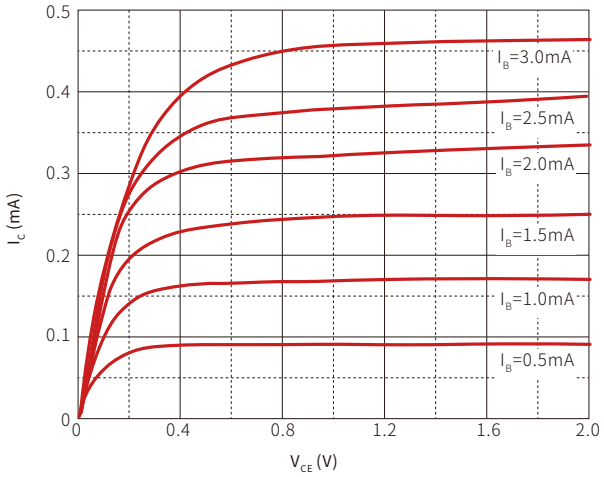
| Parameter | Symbol | Test Conditions | Min. | Typ. | Max. | Unit |
|---|---|---|---|---|---|---|
| Collector-base breakdown voltage | $V_{CBO}$ | $I_C$=-0.1mA,$I_E$=0 | -40 | | | V |
| Collector-emitter breakdown voltage | $V_{CEO}$ | $I_C$=-2.0mA,$I_B$=0 | -25 | | | |
| Emitter-base breakdown voltage | $V_{EBO}$ | $I_E$=-0.1mA,$I_C$=0 | -6.0 | | | |
| Collector cut-off current | $I_{CBO}$ | $V_{CB}$= -35V, $I_E$=0 | | | -0.1 | μA |
| Emitter cut-off current | $I_{EBO}$ | $V_{EB}$=-6.0V, $I_C$=0 | | | -0.1 | |
| DC current gain | $h_{FE(1)}$ | $V_{CE}$=-1.0V, $I_C$=-100mA | 85 | | 300 | |
| | $h_{FE(2)}$ | $V_{CE}$=-1.0V, $I_C$=-800mA | 40 | | | |
| | $h_{FE(3)}$ | $V_{CE}$=-1.0V, $I_C$=-5.0mA | 45 | | | |
| Collector-emitter saturation voltage | $V_{CE(sat)}$ | $I_C$=-800mA, $I_B$=-80mA | | -0.28 | -0.5 | V |
| Base-emitter saturation voltage | $V_{BE(sat)}$ | $I_C$=-800mA, $I_B$=-80mA | | -0.98 | -1.2 | |
| Base-emitter voltage | $V_{BE}$ | $V_{CE}$=-1.0V,$I_C$=-100mA | | -0.66 | -1.0 | |
| Collector Output Capacitance | $C_{ob}$ | $V_{CB}$=-10V, $I_E$=0,f=1.0MHz | | 15 | | pF |
| Transition frequency | $f_T$ | $V_{CE}$=-10V, $I_C$=-50mA | 100 | 200 | | MHz |

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

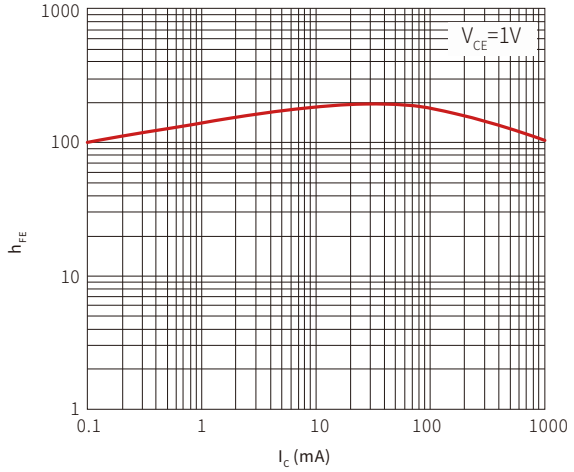
| Rank | B | C | D |
|---|---|---|---|
| Range | 85-160 | 120-200 | 160-300 |
| Marking | QHY2B | QHY2C | QHY2D |

# TYPICAL CHARACTERISTICS

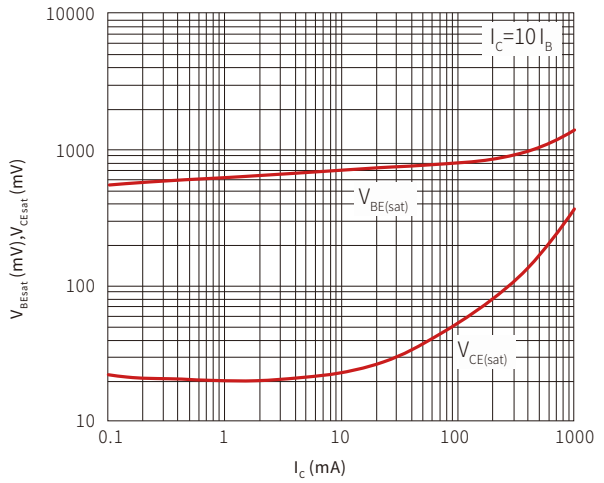
$I_C$ —— $V_{CE}$



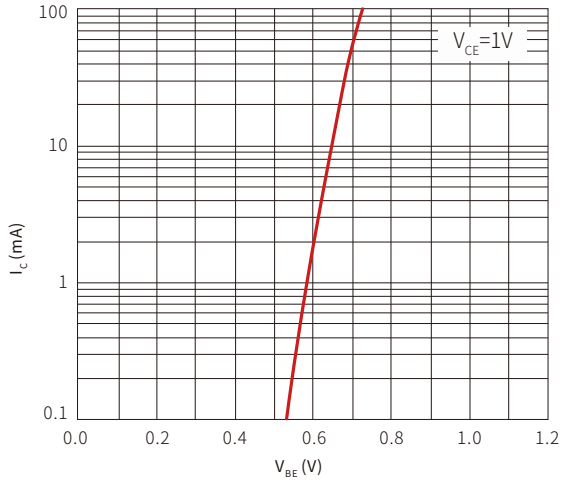

$h_{FE}$ —— $I_C$



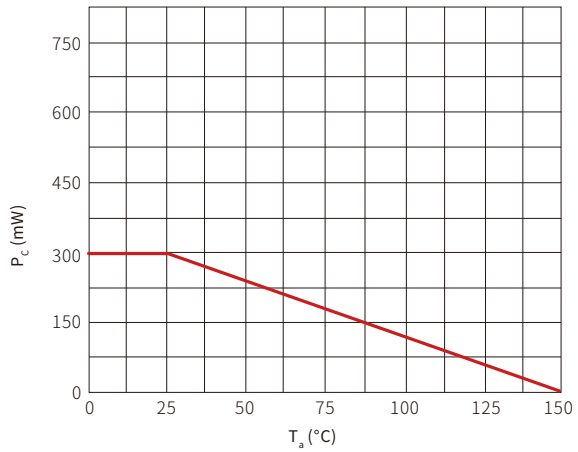

$V_{CE\,sat}$ $V_{BE\,sat}$ —— $I_C$



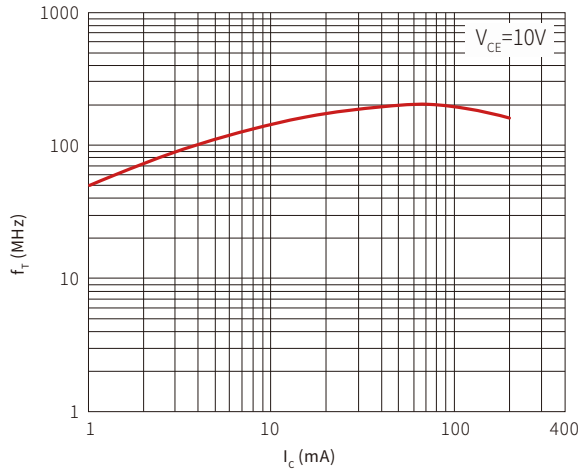

$I_C$ —— $V_{BE}$



$P_C$ ——— $T_a$

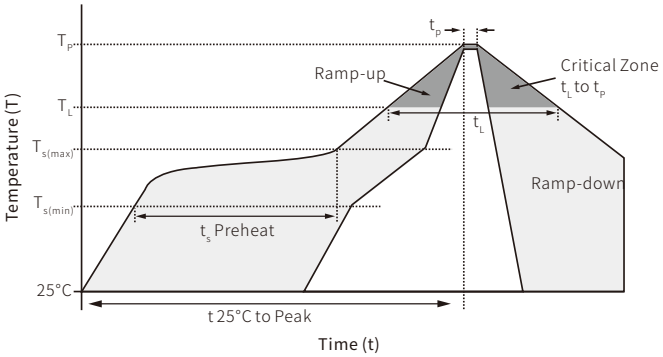



$f_T$ ——— $I_C$

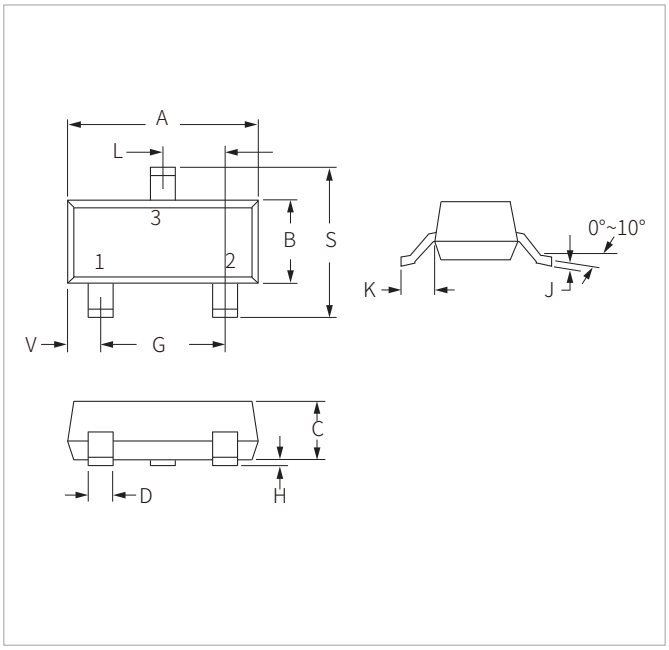



# SOLDERING PARAMETERS

| 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 |

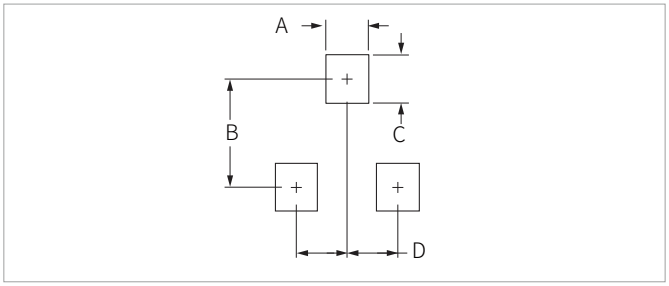


# SOT-23 PACKAGE INFORMATION




| Ref. | Millimeters | | Inches | |
|---|---|---|---|---|
| | Min. | Max. | Min. | Max. |
| A | 2.80 | 3.05 | 0.110 | 0.120 |
| B | 1.20 | 1.40 | 0.047 | 0.055 |
| C | 0.90 | 1.15 | 0.035 | 0.045 |
| D | 0.37 | 0.50 | 0.015 | 0.020 |
| G | 1.75 | 2.05 | 0.069 | 0.081 |
| H | 0.01 | 0.100 | 0.001 | 0.004 |
| J | 0.085 | 0.180 | 0.003 | 0.007 |
| K | 0.35 | 0.69 | 0.014 | 0.029 |
| L | 0.89 | 1.02 | 0.035 | 0.040 |
| S | 2.10 | 2.65 | 0.083 | 0.104 |
| V | 0.45 | 0.60 | 0.018 | 0.024 |

# RECOMMENDED PAD LAYOUT DIMENSIONS




| Ref. | Millimeters | | Inches | |
|---|---|---|---|---|
| | Min. | Max. | Min. | Max. |
| A | 0.71 | 0.97 | 0.028 | 0.038 |
| B | 1.88 | 2.13 | 0.074 | 0.084 |
| C | 0.71 | 0.97 | 0.028 | 0.038 |
| D | 0.81 | 1.07 | 0.032 | 0.042 |

# ORDERING INFORMATION

| Part Number | Component Package | QTY/Reel | Reel Size |
|---|---|---|---|
| SS8550Q | SOT-23 | 3000PCS | 7” |

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