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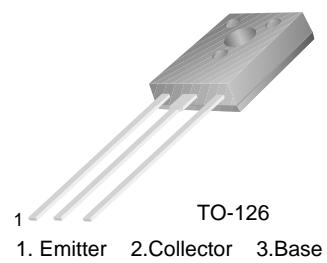
# KSC5026M

## NPN Silicon Transistor

January 2011

### Features

- High Voltage and High Reliability
- High Speed Switching
- Wide SOA



### Absolute Maximum Ratings $T_A = 25^\circ\text{C}$ 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)                           | 1.5         | A                |
| $I_{CP}$  | Collector Current (Pulse)                        | 5           | A                |
| $I_B$     | Base Current                                     | 0.8         | A                |
| $P_C$     | Collector Dissipation ( $T_C=25^\circ\text{C}$ ) | 20          | W                |
| $T_J$     | Junction Temperature                             | 150         | $^\circ\text{C}$ |
| $T_{STG}$ | Storage Temperature                              | - 55 to 150 | $^\circ\text{C}$ |

### Package Marking and Ordering Information

| Part Number | Marking  | Package | Packing Method | Remarks |
|-------------|----------|---------|----------------|---------|
| KSC5026MOS* | C5026M-O | TO-126  | BULK           |         |

\* The suffix "M" & "S" of FSID denotes TO126 package and the suffix "O" of FSID denotes  $h_{FE}$ -class

**Electrical Characteristics**  $T_A = 25^\circ\text{C}$  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             |
| $V_{CEX}(\text{sus})$  | Collector-Emitter Sustaining Voltage | $I_C = 0.75\text{A}$ ,<br>$I_{B1} = -I_{B2} = 0.15\text{A}$ ,<br>$L = 5\text{mH}$ , Clamped | 800     |      |      | V             |
| $I_{CBO}$              | Collector Cut-off Current            | $V_{CB} = 800\text{V}$ , $I_E = 0$  |         |      | 10   | $\mu\text{A}$ |
| $I_{EBO}$              | Emitter Cut-off Current              | $V_{EB} = 5\text{V}$ , $I_C = 0$  |         |      | 10   | $\mu\text{A}$ |
| $h_{FE1}$<br>$h_{FE2}$ | DC Current Gain                      | $V_{CE} = 5\text{V}$ , $I_C = 0.1\text{A}$<br>$V_{CE} = 5\text{V}$ , $I_C = 0.5\text{A}$    | 10<br>8 |      | 40   |               |
| $V_{CE}(\text{sat})$   | Collector-Emitter Saturation Voltage | $I_C = 0.75\text{A}$ , $I_B = 0.15\text{A}$   |         |      | 2    | V             |
| $V_{BE}(\text{sat})$   | Base-Emitter Saturation Voltage      | $I_C = 0.75\text{A}$ , $I_B = 0.15\text{A}$   |         |      | 1.5  | V             |
| $C_{ob}$               | Output Capacitance                   | $V_{CB} = 10\text{V}$ , $I_E = 0$ , $f = 1\text{MHz}$                                       |         | 35   |      | $\text{pF}$   |
| $f_T$                  | Current Gain Bandwidth Product       | $V_{CE} = 10\text{V}$ , $I_C = 0.1\text{A}$   |         | 15   |      | MHz           |
| $t_{ON}$               | Turn On Time                         | $V_{CC} = 400\text{V}$  |         |      | 0.5  | $\mu\text{s}$ |
| $t_{STG}$              | Storage Time                         | $I_C = 5I_{B1} = -2.5I_{B2} = 1\text{A}$<br>$R_L = 400\Omega$                               |         |      | 3    | $\mu\text{s}$ |
| $t_F$                  | Fall Time                            |   |         |      | 0.3  | $\mu\text{s}$ |

 **$h_{FE}$  Classification**

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

## Typical Performance Characteristics

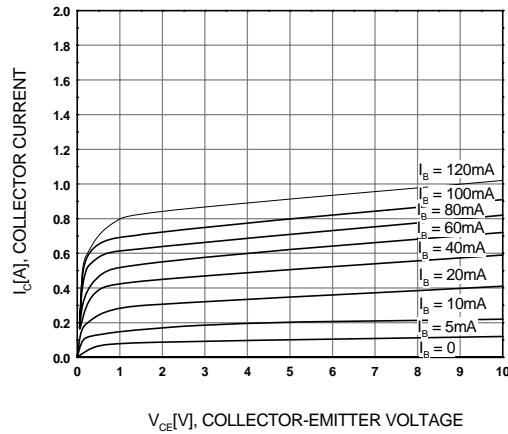


Figure 1. Static Characteristic

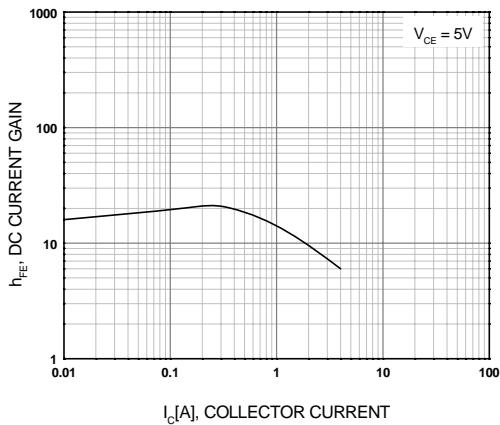


Figure 2. DC current Gain

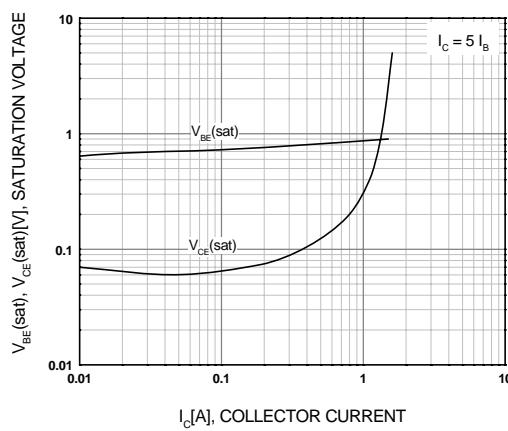


Figure 3. Base-Emitter Saturation Voltage  
Collector-Emitter Saturation Voltage

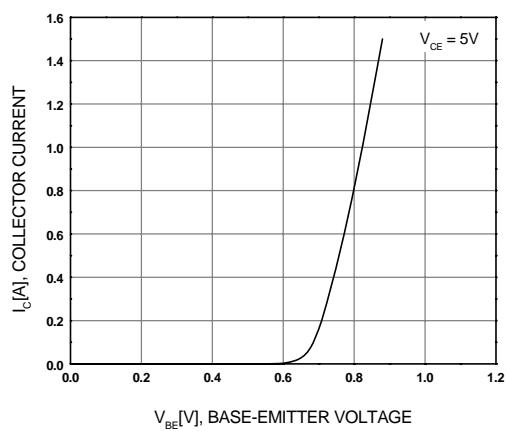


Figure 4. Base-Emitter On Voltage

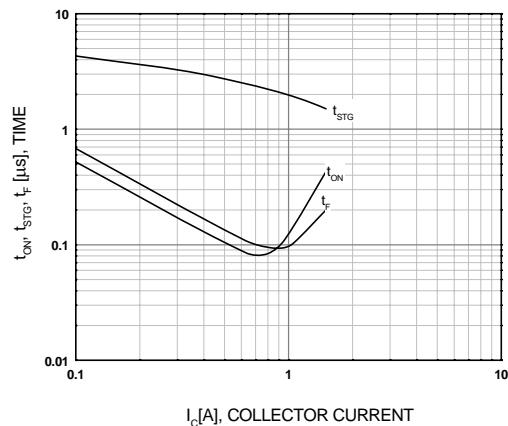


Figure 5. Switching Time

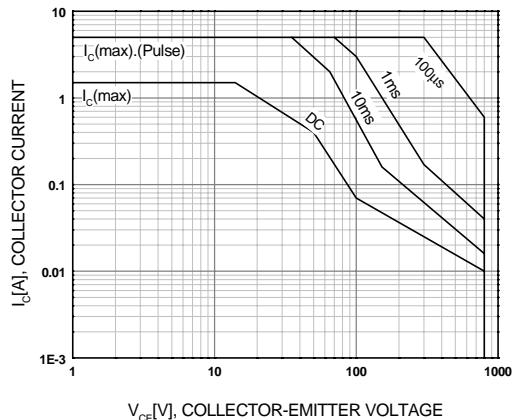
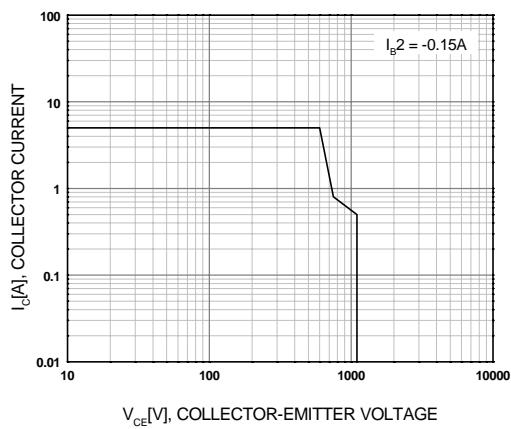


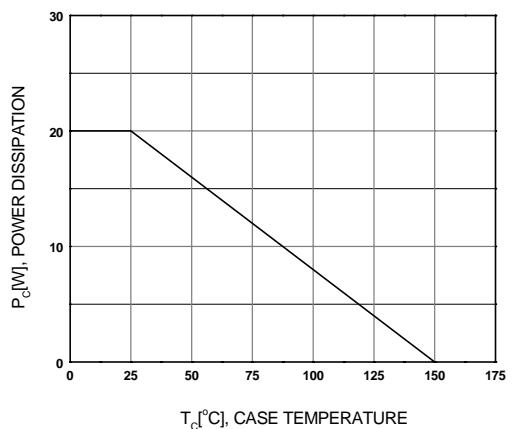
Figure 6. Safe Operating Area

## Typical Performance Characteristics

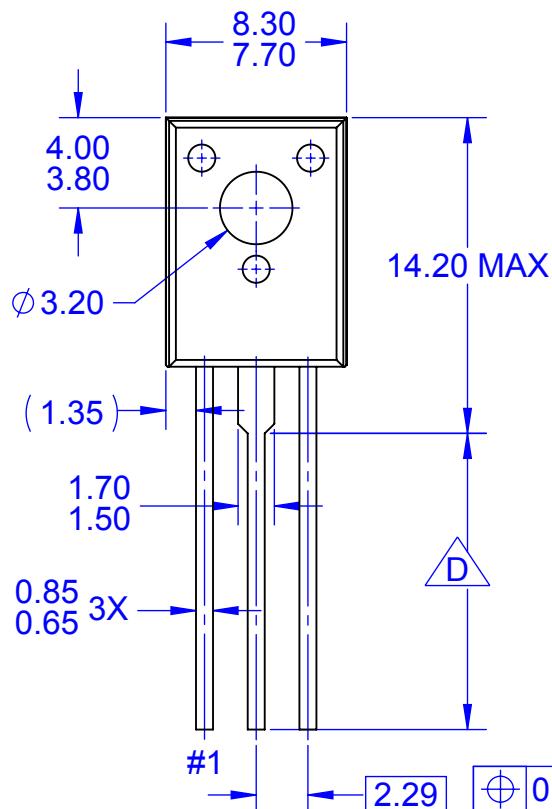
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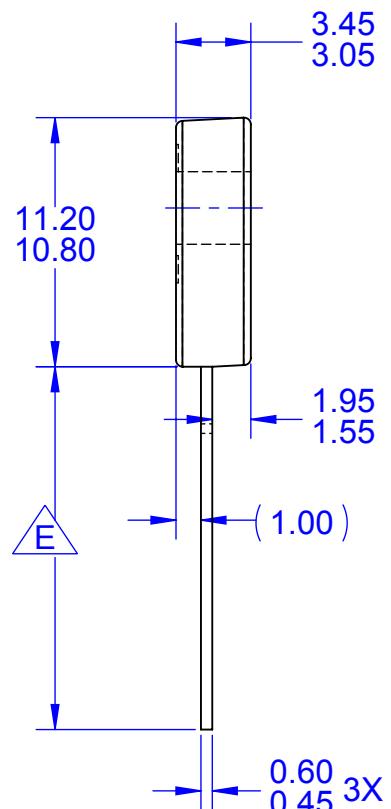
**Figure 7. Reverse Bias Safe Operating Area**



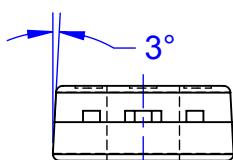
**Figure 8. Power Derating**



TOP VIEW



SIDE VIEW



FRONT VIEW

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- B. ALL DIMENSIONS ARE IN MILLIMETERS
- C. DIMENSIONS ARE EXCLUSIVE OF BURRS, MOLD FLASH, AND TIE BAR PROTRUSIONS

FOR TERMINAL LENGTH "D", REFER TO TABLE

FOR TERMINAL LENGTH "E", REFER TO TABLE  
F. DRAWING FILENAME: MKT-TO126AArev2

| PRODUCTION CODE   | TERMINAL LENGTH "D" | TERMINAL LENGTH "E" |
|-------------------|---------------------|---------------------|
| TSSTU             | 3.45 - 4.05         | 6.45-7.45           |
| TSTU              | 2.36 - 2.96         | 5.36-6.36           |
| NONE (STD LENGTH) | 12.76 - 13.36       | 15.76-16.76         |



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