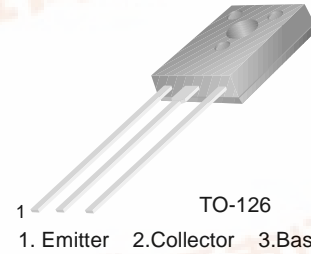


**FAIRCHILD**  
SEMICONDUCTOR®

## KSC5026M

### 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)                           | 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 ~ 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 | $I_C = 0.75\text{A}$<br>$I_{B1} = -I_{B2} = 0.15\text{A}$<br>$L = 5\text{mH}, \text{Clamped}$ | 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   |               |
| $V_{CE(sat)}$          | Collector-Emitter Saturation Voltage | $I_C = 0.75\text{A}, I_B = 0.15\text{A}$  |         |      | 2    | V             |
| $V_{BE(sat)}$          | 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   |      | 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                         | $I_C = 5\text{I}_{B1} = -2.5\text{I}_{B2} = 1\text{A}$  |         |      | 3    | $\mu\text{s}$ |
| $t_F$                  | Fall Time                            | $R_L = 400\Omega$   |         |      | 0.3  | $\mu\text{s}$ |

### $h_{FE}$ Classification

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



# Typical Characteristics

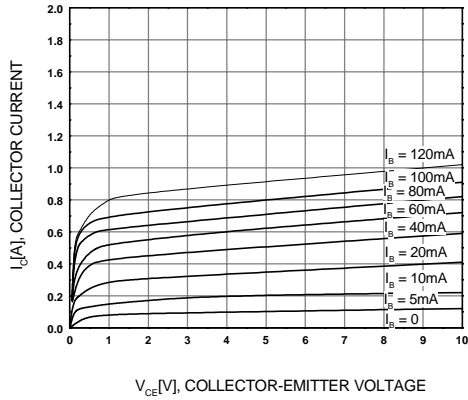


Figure 1. Static Characteristic

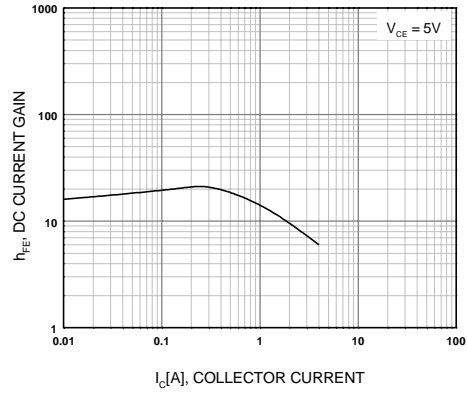


Figure 2. DC current Gain

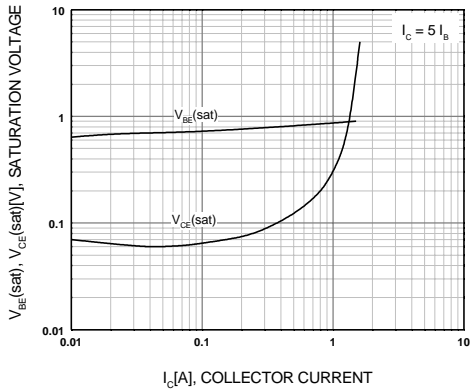


Figure 3. Base-Emitter Saturation Voltage  
Collector-Emitter Saturation Voltage

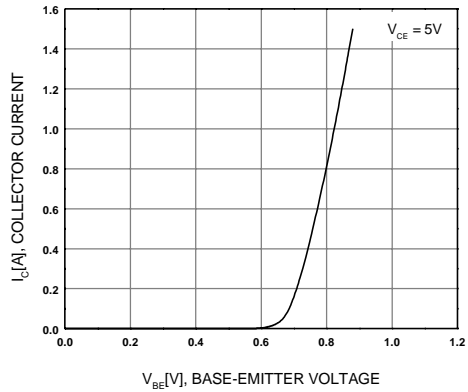


Figure 4. Base-Emitter On Voltage

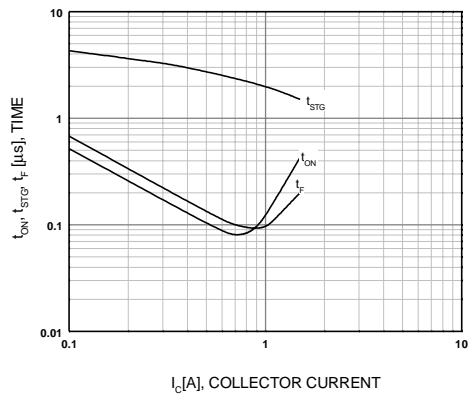


Figure 5. Switching Time

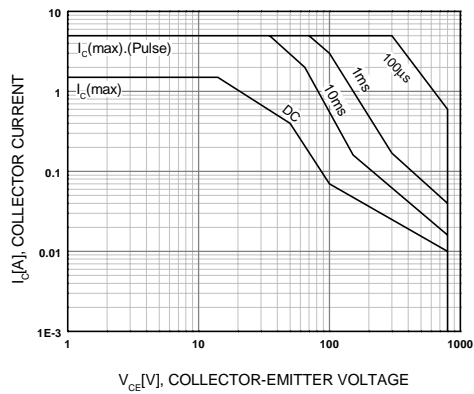


Figure 6. Safe Operating Area

### Typical Characteristics (Continued)

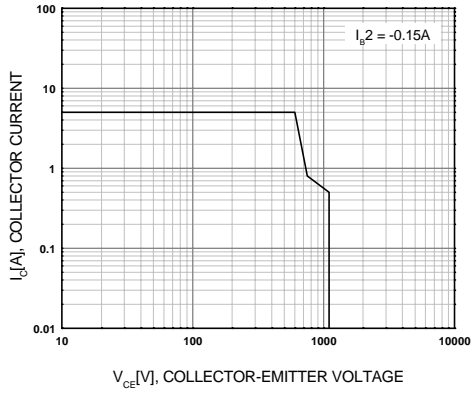


Figure 7. Reverse Bias Safe Operating Area

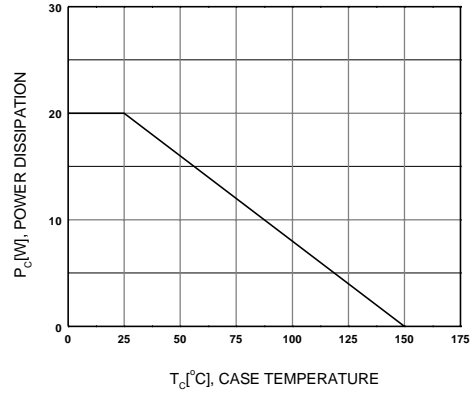
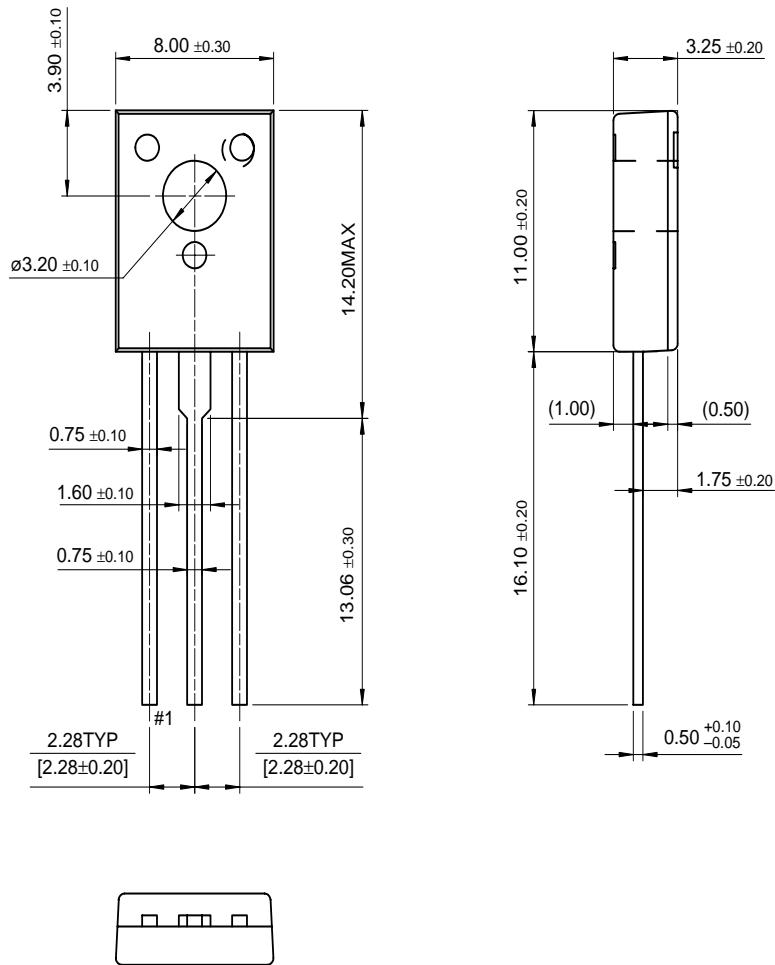


Figure 8. Power Derating

# Package Dimensions

KSC5026M

## TO-126



Dimensions in Millimeters

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|                                      |                     |                    |                     |                 |
|--------------------------------------|---------------------|--------------------|---------------------|-----------------|
| ACEx™                                | FACT™               | ImpliedDisconnect™ | PACMAN™             | SPM™            |
| ActiveArray™                         | FACT Quiet series™  | ISOPLANAR™         | POP™                | Stealth™        |
| Bottomless™                          | FAST®               | LittleFET™         | Power247™           | SuperSOT™-3     |
| CoolFET™                             | FASTr™              | MicroFET™          | PowerTrench®        | SuperSOT™-6     |
| CROSSVOLT™                           | FRFET™              | MicroPak™          | QFET™               | SuperSOT™-8     |
| DOMET™                               | GlobalOptoisolator™ | MICROWIRE™         | QS™                 | SyncFET™        |
| EcoSPARK™                            | GTO™                | MSX™               | QT Optoelectronics™ | TinyLogic™      |
| E <sup>2</sup> CMOS™                 | HiSeC™              | MSXPro™            | Quiet Series™       | TruTranslation™ |
| EnSigna™                             | I <sup>2</sup> C™   | OCX™               | RapidConfigure™     | UHC™            |
| Across the board. Around the world.™ |                     | OCXPro™            | RapidConnect™       | UltraFET®       |
| The Power Franchise™                 |                     | OPTOLOGIC®         | SILENT SWITCHER®    | VCX™            |
| Programmable Active Droop™           |                     | OPTOPLANAR™        | SMART START™        |                 |

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