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FAIRCHILD

September 2015

KSC5019
NPN Epitaxial Silicon Transistor

Features

- Low Saturation
- $V_{CE}(sat)$ = 0.5 V at I_C = 2 A, I_B = 50 mA



TO-92
1. Emitter
2. Collector
3. Base

Straight Lead Bulk Packing

Bent Lead Tape & Reel Ammo Packing

Ordering Information

Part Number	Top Mark	Package	Packing Method
KSC5019MTA	C5019	TO-92 3L	Ammo

Absolute Maximum Ratings

Stresses exceeding the absolute maximum ratings may damage the device. The device may not function or be operable above the recommended operating conditions and stressing the parts to these levels is not recommended. In addition, extended exposure to stresses above the recommended operating conditions may affect device reliability. The absolute maximum ratings are stress ratings only. Values are at T_A = 25°C unless otherwise noted.

Symbol	Parameter	Value	Unit
V_{CBO}	Collector-Base Voltage	30	V
V_{CES}	Collector-Emitter Voltage	30	V
V_{CEO}	Collector-Emitter Voltage	10	V
V_{EBO}	Emitter-Base Voltage	6	V
I_C	Collector Current (DC)	2	A
I_{CP}	Collector Current (Pulse)(1)	5	A
I_B	Base Current	2	A
T_J	Junction Temperature	150	°C
T_{STG}	Storage Temperature	-55 to 150	°C

Note:

1. PW ≤ 10 ms, duty cycle ≤ 30%

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Thermal Characteristics[2]

Values are at T_A = 25°C unless otherwise noted.

Symbol	Parameter	Value	Unit
P_C	Collector Power Dissipation	750	mW
$R_{\theta JA}$	Thermal Resistance, Junction-to-Ambient	160	°C/W

Note:

2. PCB size: FR-4, 76 mm x 114 mm x 1.57 mm (3.0 inch x 4.5 inch x 0.062 inch) with minimum land pattern size.

Electrical Characteristics

Values are at T_A = 25°C unless otherwise noted.

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
I_{CBO}	Collector Cut-Off Current	V_{CB} = 30 V, I_E = 0			100	nA
I_{EBO}	Emitter Cut-Off Current	V_{EB} = 6 V, I_C = 0			100	nA
BV_{CEO}	Collector-Emitter Breakdown Voltage	I_C = 10 mA, I_B = 0	10			V
BV_{EBO}	Emitter-Base Breakdown Voltage	I_E = 1 mA, I_C = 0	6			V
h_{FE1}	DC Current Gain	V_{CE} = 1 V, I_C = 0.5 A	140		600	
h_{FE2}		V_{CE} = 1 V, I_C = 2 A	70	200		
V_{CE}(sat)	Collector-Emitter Saturation Voltage	I_C = 2 A, I_B = 50 mA		0.2	0.5	V
V_{BE}(on)	Base-Emitter On Voltage	V_{CE} = 1 V, I_C = 2 A		0.86	1.50	V
f_T	Current Gain Bandwidth Product	V_{CE} = 1 V, I_C = 0.5 A		150		MHz
C_{ob}	Output Capacitance	V_{CB} = 10 V, I_E = 0, f = 1 MHz		27		pF

h_{FE} Classification

Classification	L	M	N	P
h_{FE1}	140 ~ 240	200 ~ 330	300 ~ 450	420 ~ 600

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Typical Performance Characteristics

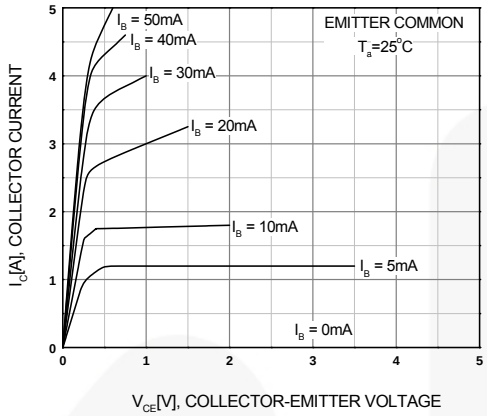


Figure 1. Static Characteristic

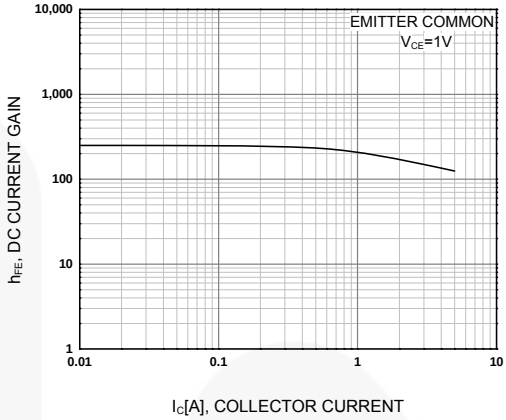


Figure 2. DC Current Gain

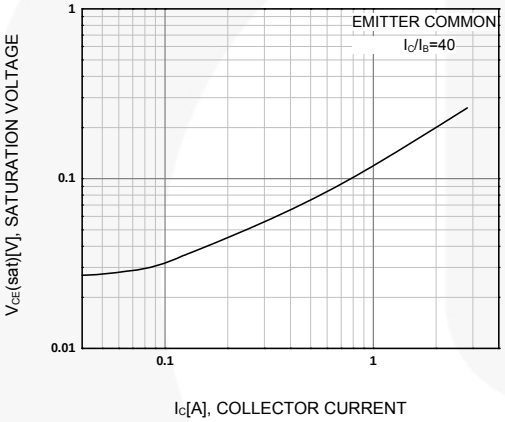


Figure 3. Collector-Emitter Saturation Voltage

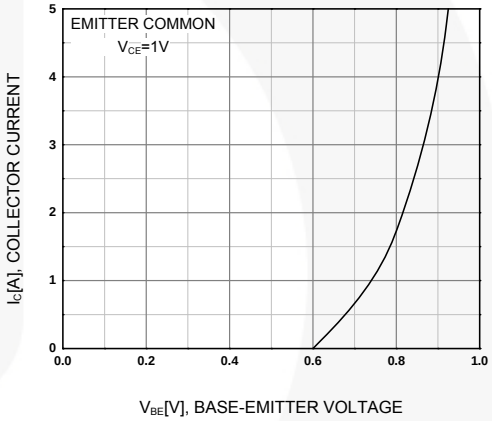


Figure 4. Base-Emitter On Voltage

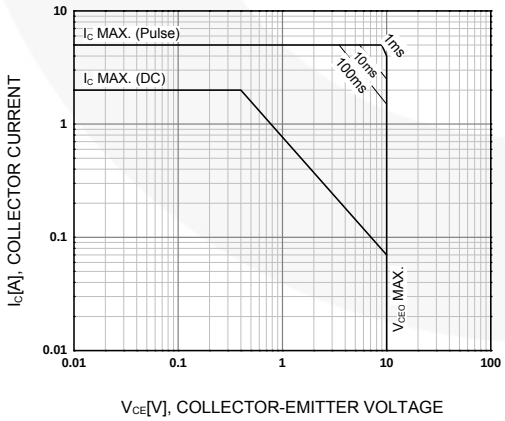


Figure 5. Safe Operating Area

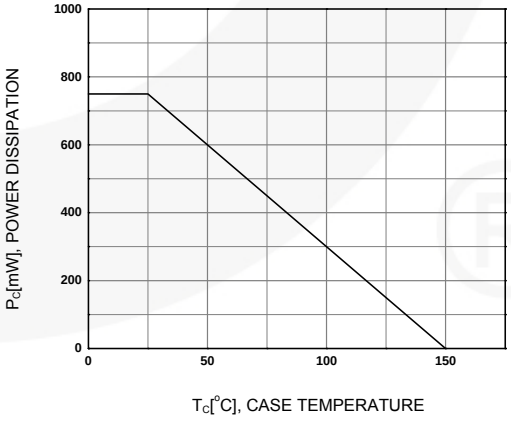


Figure 6. Power Derating

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Physical Dimensions

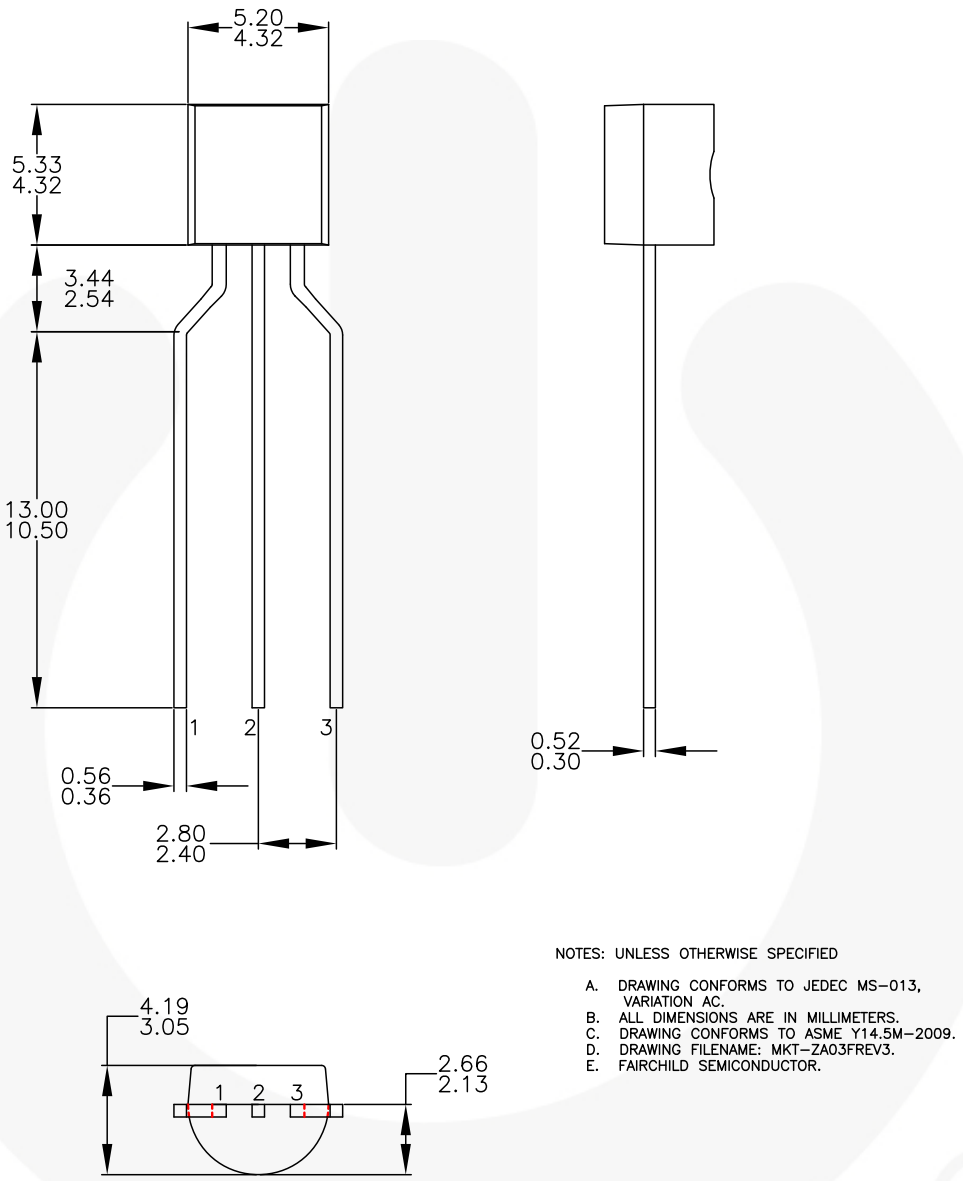


Figure 7. 3-Lead, TO-92, Molded, 0.2 In Line Spacing Lead Form, Ammo Type

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