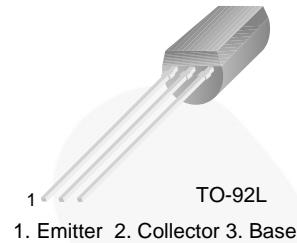




October 2014

KSC2383

NPN Epitaxial Silicon Transistor



KSC2383 — NPN Epitaxial Silicon Transistor

Ordering Information

Part Number	Top Mark	Package	Packing Method
KSC2383OTA	C2383 O-	TO-92 3L	Ammo
KSC2383YTA	C2383 Y-	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 $T_A = 25^\circ\text{C}$ unless otherwise noted.

Symbol	Parameter	Value	Unit
V_{CBO}	Collector-Base Voltage	160	V
V_{CEO}	Collector-Emitter Voltage	160	V
V_{EBO}	Emitter-Base Voltage	6	V
I_C	Collector Current	1	A
I_B	Base Current	0.5	A
T_J	Junction Temperature	150	$^\circ\text{C}$
T_{STG}	Storage Temperature	-55 to +150	$^\circ\text{C}$

Thermal Characteristics⁽¹⁾

Values are at $T_A = 25^\circ\text{C}$ unless otherwise noted.

Symbol	Parameter	Value	Unit
P_D	Power Dissipation	900	mW
	Derate Above 25°C	7.2	mW/ $^\circ\text{C}$
$R_{\theta JA}$	Thermal Resistance, Junction-to-Ambient	138	$^\circ\text{C}/\text{W}$

Note:

1. 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 $T_A = 25^\circ\text{C}$ unless otherwise noted.

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
I_{CBO}	Collector Cut-Off Current	$V_{CB} = 150\text{ V}, I_E = 0$			1	μA
I_{EBO}	Emitter Cut-Off Current	$V_{EB} = 6\text{ V}, I_C = 0$			1	μA
BV_{CEO}	Collector-Emitter Breakdown Voltage	$I_C = 10\text{ mA}, I_B = 0$	160			V
h_{FE}	DC Current Gain	$V_{CE} = 5\text{ V}, I_C = 200\text{ mA}$	60		320	
$V_{CE(sat)}$	Collector-Emitter Saturation Voltage	$I_C = 500\text{ mA}, I_B = 50\text{ mA}$			1.5	V
$V_{BE(on)}$	Base-Emitter On Voltage	$V_{CE} = 5\text{ V}, I_C = 5\text{ mA}$	0.45		0.75	V
f_T	Current Gain Bandwidth Product	$V_{CE} = 5\text{ V}, I_C = 200\text{ mA}$	20	100		MHz
C_{ob}	Output Capacitance	$V_{CB} = 10\text{ V}, I_E = 0,$ $f = 1\text{ MHz}$			20	pF

 h_{FE} Classification

Classification	R	O	Y
h_{FE}	60 ~ 120	100 ~ 200	160 ~ 320

Typical Performance Characteristics

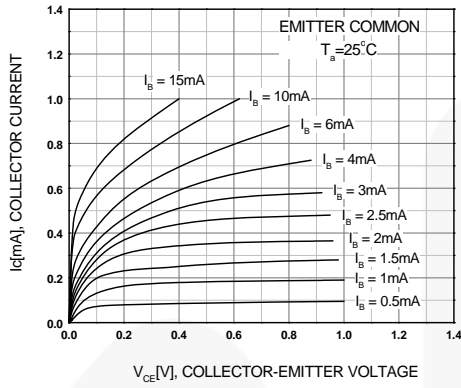


Figure 1. Static Characteristic

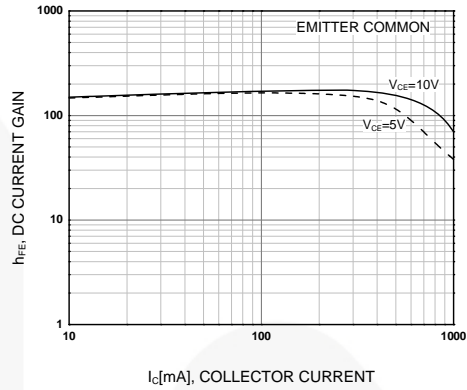


Figure 2. DC Current Gain

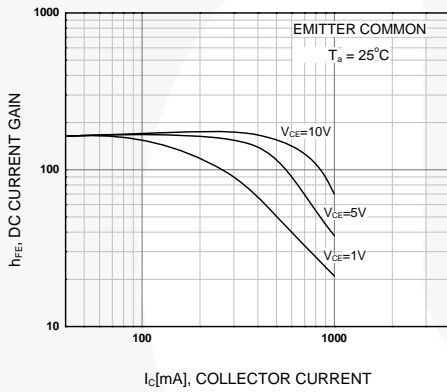


Figure 3. DC Current Gain

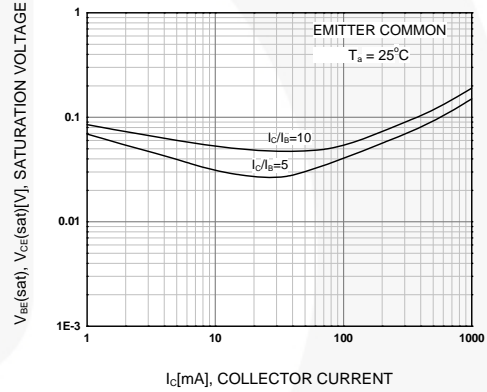


Figure 4. Collector-Emitter Saturation Voltage

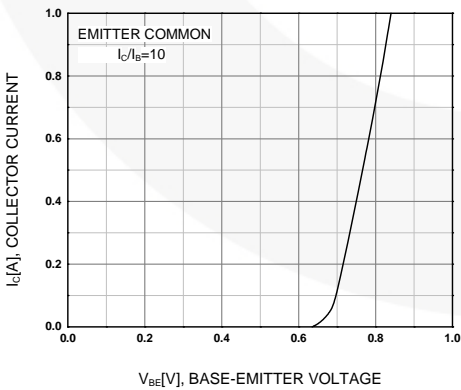


Figure 5. Base-Emitter On Voltage

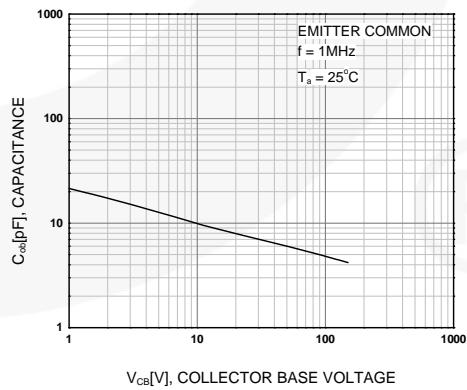


Figure 6. Collector Output Capacitance

Typical Performance Characteristics (Continued)

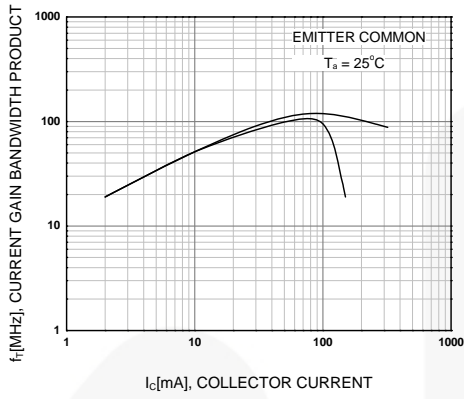


Figure 7. Current Gain Bandwidth Product

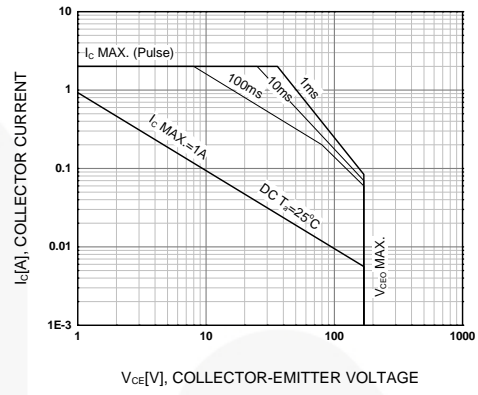
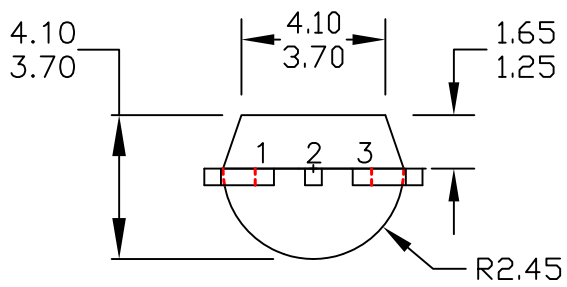
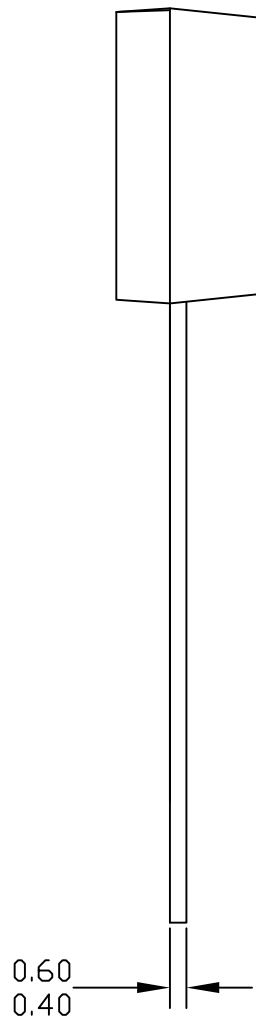
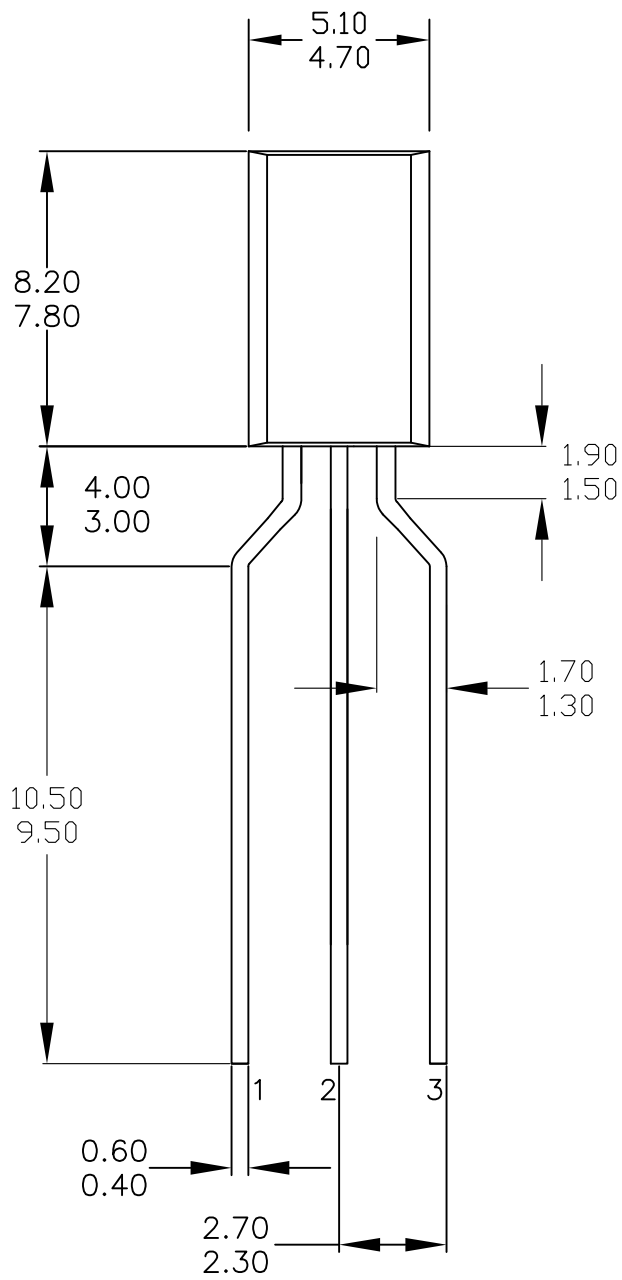


Figure 8. Safe Operating Area



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Preliminary	First Production	Datasheet contains preliminary data; supplementary data will be published at a later date. Fairchild Semiconductor reserves the right to make changes at any time without notice to improve design.
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