

KSC2334

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High Speed Switching Industrial Use

- Complement to KSA1010



TO-220
1.Base 2.Collector 3.Emitter

NPN Epitaxial Silicon Transistor

Absolute Maximum Ratings $T_C=25^\circ\text{C}$ unless otherwise noted

Symbol	Parameter	Value	Units
V_{CBO}	Collector-Base Voltage	150	V
V_{CEO}	Collector-Emitter Voltage	100	V
V_{EBO}	Emitter-Base Voltage	7	V
I_C	Collector Current (DC)	7	A
I_{CP}	*Collector Current (Pulse)	15	A
I_B	Base Current (DC)	3.5	A
P_C	Collector Dissipation ($T_C=25^\circ\text{C}$)	40	W
	Collector Dissipation ($T_A=25^\circ\text{C}$)	1.5	W
T_J	Junction Temperature	150	$^\circ\text{C}$
T_{STG}	Storage Temperature	- 55 ~ 150	$^\circ\text{C}$

* $PW \leq 300\mu\text{s}$, Duty Cycles $\leq 10\%$

Electrical Characteristics $T_C=25^\circ\text{C}$ unless otherwise noted

Symbol	Parameter	Test Condition	Min.	Max.	Units
$V_{CEO(sus)}$	Collector-Emitter Sustaining Voltage	$I_C = 5A, I_{B1} = 0.5A, L = 1\text{mH}$	100		V
$V_{CEX(sus)1}$	Collector-Emitter Sustaining Voltage	$I_C = 5A, I_{B1} = -I_{B2} = 0.5A$ $V_{BE(off)} = -5V, L = 180\mu\text{H}$, Clamped	100		V
$V_{CEX(sus)2}$	Collector-Emitter Sustaining Voltage	$I_C = 10A, I_{B1} = 1A, I_{B2} = -0.5A$, $V_{BE(off)} = -5V, L = 180\mu\text{H}$, Clamped	100		V
I_{CBO}	Collector Cut-off Current	$V_{CB} = 100, I_E = 0$		10	μA
I_{CER}	Collector Cut-off Current	$V_{CE} = 100V, R_{BE} = 51\Omega @ T_C = 125^\circ\text{C}$		1	mA
I_{CEX1} I_{CEX2}	Collector Cut-off Current	$V_{CE} = 100V, V_{BE(off)} = -1.5V$ $V_{CE} = 100V, V_{BE(off)} = -1.5V$ @ $T_C = 125^\circ\text{C}$		10	μA
				1	mA
I_{EBO}	Emitter Cut-off Current	$V_{EB} = 5V, I_C = 0$		10	μA
h_{FE1}	* DC Current Gain	$V_{CE} = 5V, I_C = 0.5A$	40		
h_{FE2}		$V_{CE} = 5V, I_C = 3A$	40	240	
h_{FE3}		$V_{CE} = 5V, I_C = 5A$	20		
$V_{CE(sat)}$	* Collector-Emitter Saturation Voltage	$I_C = 5A, I_B = 0.5A$		0.6	V
$V_{BE(sat)}$	* Base-Emitter Saturation Voltage	$I_C = 5A, I_B = 0.5A$		1.5	V
t_{ON}	Turn On Time	$V_{CC} = 50V, I_C = 5A$ $I_{B1} = -I_{B2} = 0.5A$ $R_L = 10\Omega$		0.5	μs
t_{STG}	Storage Time			0.5	μs
t_F	Fall Time			1.5	μs

* Pulse Test: $PW \leq 350\mu\text{s}$, Duty Cycles $\leq 2\%$ Pulsed

h_{FE} Classification

Classification	R	O	Y
h_{FE2}	40 ~ 80	70 ~ 140	120 ~ 240

Typical Characteristics

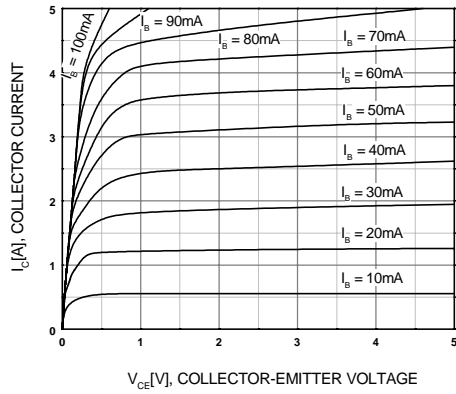


Figure 1. Static Characteristic

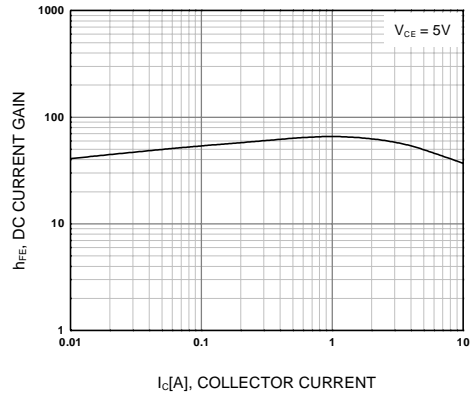


Figure 2. DC current Gain

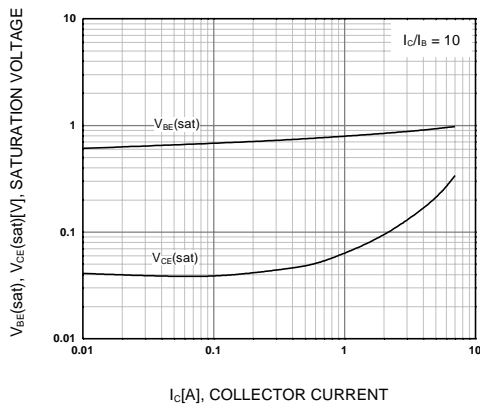


Figure 3. Base-Emitter Saturation Voltage
Collector-Emmitter Saturation Voltage

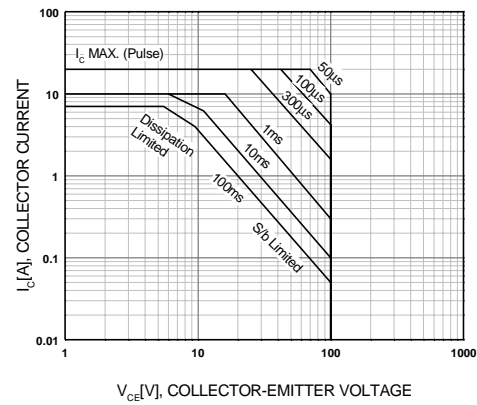


Figure 4. Safe Operating Area

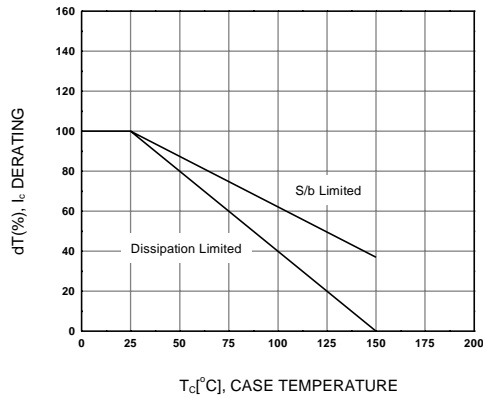


Figure 5. Derating Curve of Safe Operating Areas

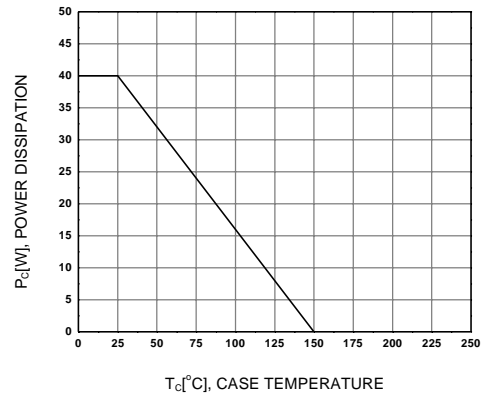
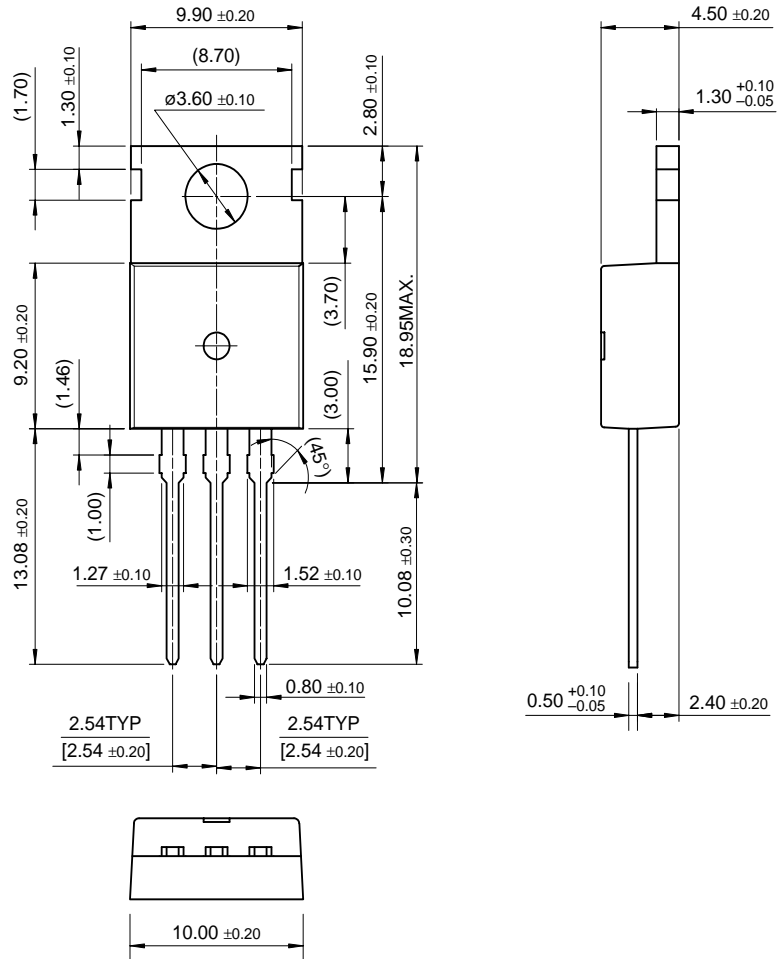


Figure 6. Power Derating

Package Dimensions

TO-220



Dimensions in Millimeters

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