

FAIRCHILD
SEMICONDUCTOR®

KSP44/45

High Voltage Transistor

- Collector-Emitter Voltage: V_{CE0} =KSP44: 400V
KSP45: 350V
- Collector Power Dissipation: P_C (max)=625mW



NPN Epitaxial Silicon Transistor

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

Symbol	Parameter	Value	Units
V_{CBO}	Collector-Base Voltage		
	: KSP44	500	V
	: KSP45	400	V
V_{CEO}	Collector-Emitter Voltage		
	: KSP44	400	V
	: KSP45	350	V
V_{EBO}	Emitter-Base Voltage	6	V
I_C	Collector Current	300	mA
P_C	Collector Power Dissipation ($T_a=25^\circ\text{C}$)	625	mW
P_C	Collector Power Dissipation ($T_C=25^\circ\text{C}$)	1.5	W
T_J	Junction Temperature	150	$^\circ\text{C}$
T_{STG}	Storage Temperature	-55 ~ 150	$^\circ\text{C}$

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

Symbol	Parameter	Test Condition	Min.	Max.	Units
BV_{CBO}	Collector-Base Breakdown Voltage	$I_C=100\mu\text{A}, I_B=0$			
	: KSP44		500		V
	: KSP45		400		V
BV_{CEO}	* Collector - Emitter Breakdown Voltage	$I_C=1\text{mA}, I_B=0$			
	: KSP44		400		V
	: KSP45		350		V
BV_{EBO}	Emitter-Base Breakdown Voltage	$I_E=100\mu\text{A}, I_C=0$	6		V
I_{CBO}	Collector Cut-off Current				
	: KSP44	$V_{CB}=400\text{V}, I_E=0$		0.1	μA
	: KSP45	$V_{CB}=320\text{V}, I_E=0$		0.1	μA
I_{CES}	Collector Cut-off Current				
	: KSP44	$V_{CE}=400\text{V}, I_B=0$		0.5	μA
	: KSP45	$V_{CE}=320\text{V}, I_B=0$		0.5	μA
I_{EBO}	Emitter Cut-off Current	$V_{EB}=4\text{V}, I_C=0$		0.1	μA
h_{FE}	* DC Current Gain	$V_{CE}=10\text{V}, I_C=1\text{mA}$	40		
		$V_{CE}=10\text{V}, I_C=10\text{mA}$	50	200	
		$V_{CE}=10\text{V}, I_C=50\text{mA}$	45		
		$V_{CE}=10\text{V}, I_C=100\text{mA}$	40		
$V_{CE}(\text{sat})$	* Collector-Emitter Saturation Voltage	$I_C=1\text{mA}, I_B=0.1\text{mA}$		0.4	V
		$I_C=10\text{mA}, I_B=1\text{mA}$		0.5	V
		$I_C=50\text{mA}, I_B=5\text{mA}$		0.75	V
$V_{BE}(\text{sat})$	* Base-Emitter Saturation Voltage	$I_C=10\text{mA}, I_B=1\text{mA}$		0.75	V
C_{ob}	Output Capacitance	$V_{CB}=20\text{V}, I_E=0, f=1\text{MHz}$		7	pF

* Pulse Test: $PW \leq 300\mu\text{s}$, Duty Cycle $\leq 2\%$



Typical Characteristics

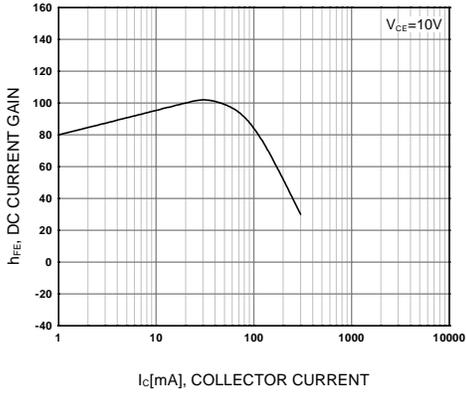


Figure 1. DC current Gain

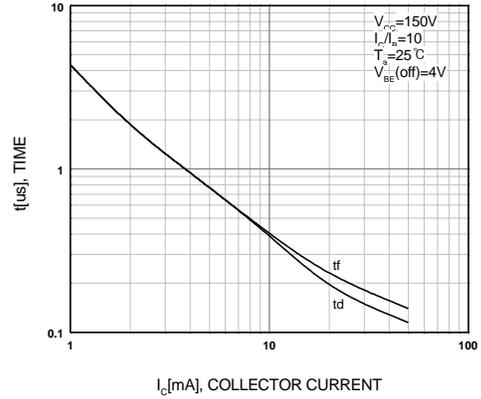


Figure 2. Turn-On Switching Times

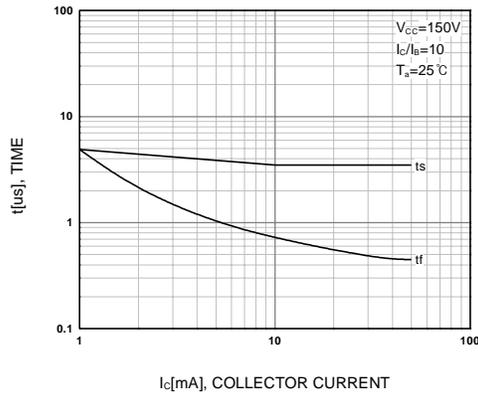


Figure 3. Turn-Off Switching Times

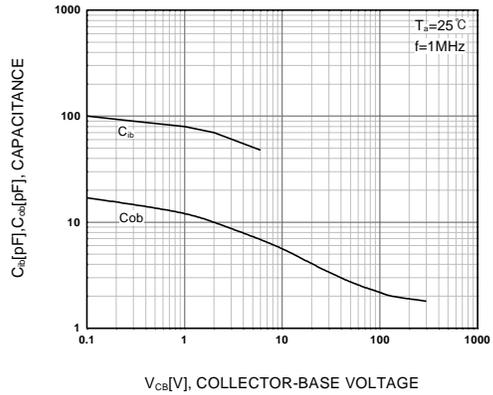


Figure 4. Capacitance

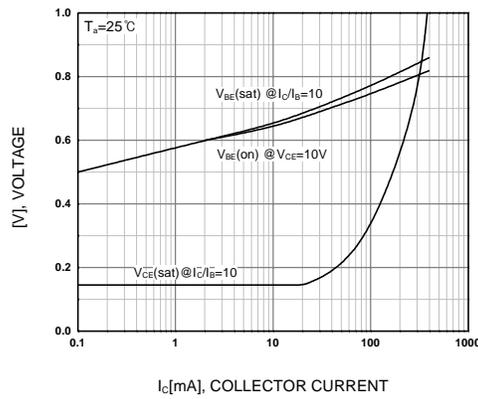


Figure 5. On Voltage

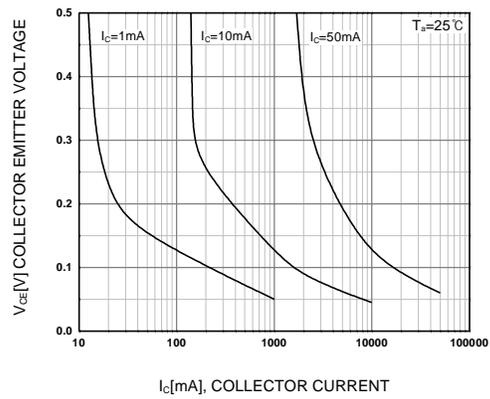


Figure 6. Collector Saturation Region

Typical Characteristics (Continued)

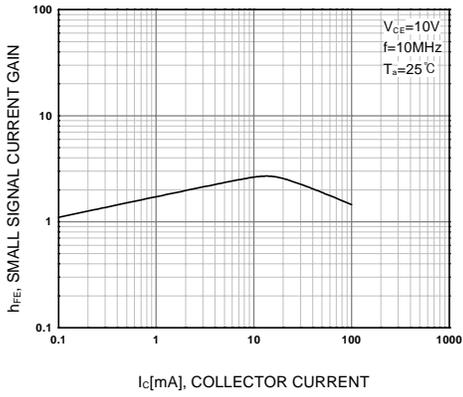


Figure 7. High Frequency Current Gain

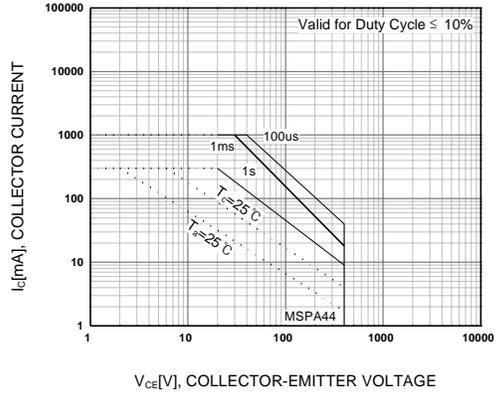
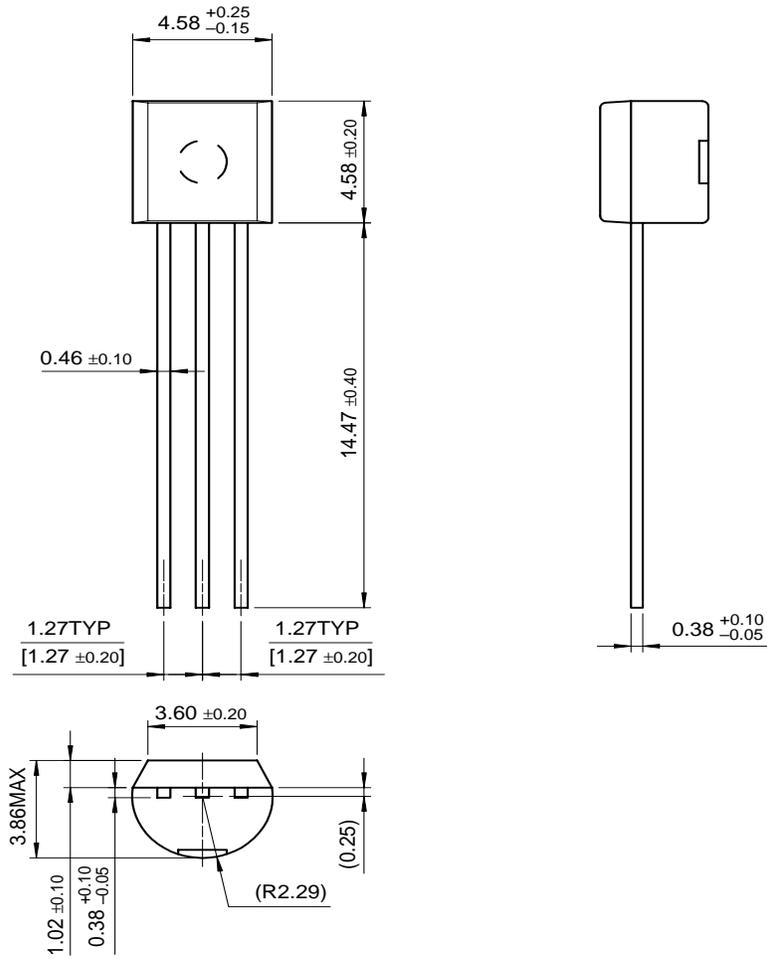


Figure 8. Safe Operating Area

Package Dimensions

TO-92



Dimensions in Millimeters

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CROSSVOLT™	FRFET™	MicroPak™	QFET™	SuperSOT™-8
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