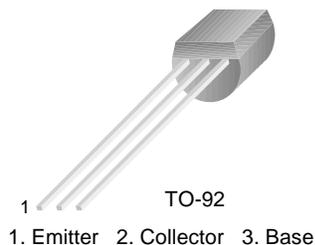


# KSD5041

KSD5041

## AF Output Amplifier for Electronic Flash Unit

- Low Collector-Emitter Saturation Voltage
- High Performance at Low Supply Voltage



## NPN Epitaxial Silicon Transistor

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

Symbol	Parameter	Ratings	Units
$V_{CBO}$	Collector-Base Voltage	40	V
$V_{CEO}$	Collector-Emitter Voltage	20	V
$V_{EBO}$	Emitter-Base Voltage	7	V
$I_C$	Collector Current	5	A
$P_C$	Collector Power Dissipation	0.75	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.	Typ.	Max.	Units
$BV_{CEO}$	Collector-Emitter Breakdown Voltage	$I_C=1\text{mA}, I_B=0$	20			V
$BV_{EBO}$	Emitter-Base Breakdown Voltage	$I_C=10\mu\text{A}, I_C=0$	7			V
$I_{CBO}$	Collector Cut-off Current	$V_{CB}=10\text{V}, I_E=0$			0.1	$\mu\text{A}$
$I_{EBO}$	Emitter Cut-off Current	$V_{EB}=7\text{V}, I_C=0$			0.1	$\mu\text{A}$
$h_{FE1}$ $h_{FE2}$	DC Current Gain	$V_{CE}=2\text{V}, I_C=0.5\text{A}$ $V_{CE}=2\text{V}, I_C=2\text{A}$	180 150		600	
$V_{CE(sat)}$	Collector-Emitter Saturation Voltage	$I_C=3\text{A}, I_B=0.1\text{A}$			1	V
$f_T$	Current Gain Bandwidth Product	$V_{CE}=6\text{V}, I_C=50\text{mA}$		150		MHz
$C_{ob}$	Output Capacitance	$V_{CB}=20\text{V}, I_E=0, f=1\text{MHz}$			50	pF

### $h_{FE}$ Classification

Classification	P	Q	R
$h_{FE}$	180 ~ 270	230 ~ 380	340 ~ 600

# Typical Characteristics

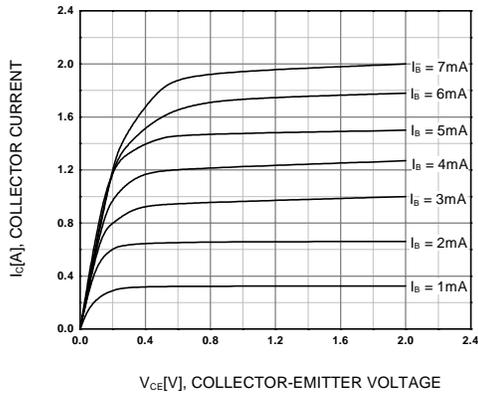


Figure 1. Static Characteristic

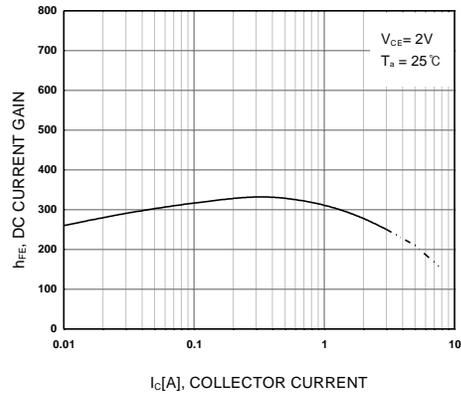


Figure 2. DC current Gain

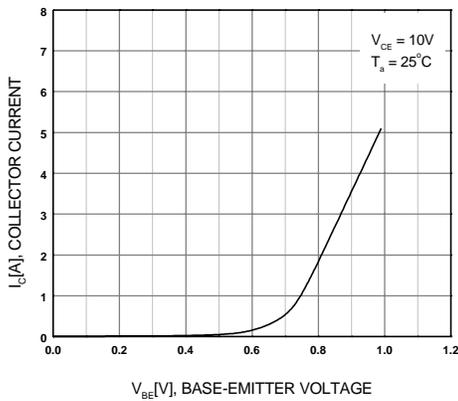


Figure 3. Base-Emitter Saturation Voltage

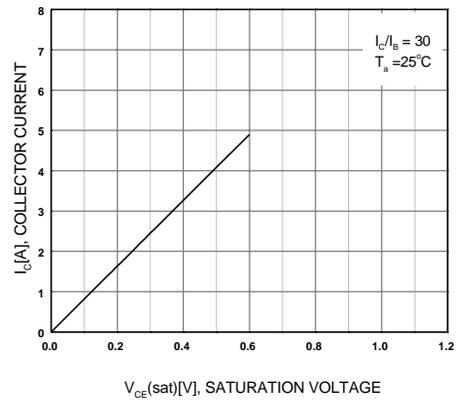


Figure 4. Collector-Emitter Saturation Voltage

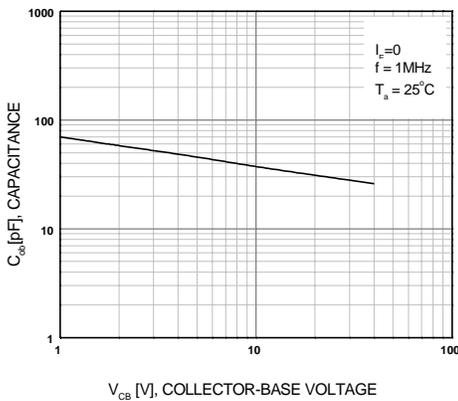


Figure 5. Collector Output Capacitance

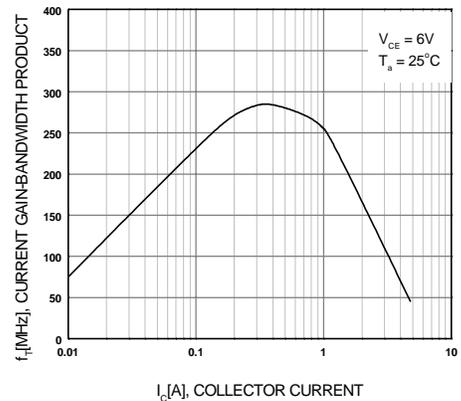


Figure 6. Current Gain Bandwidth Product

# Typical Characteristics (Continued)

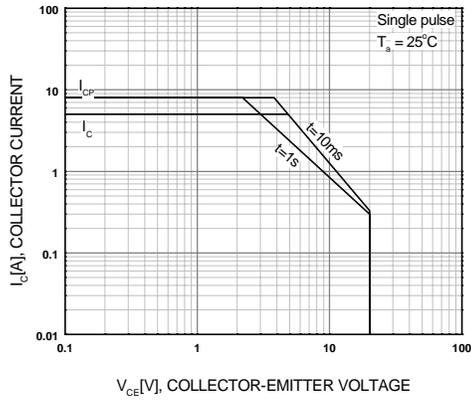


Figure 7. Safe Operating Area

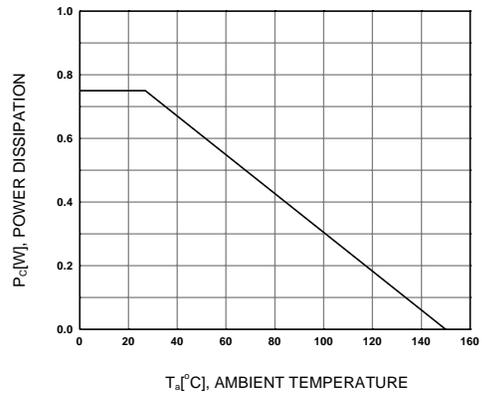
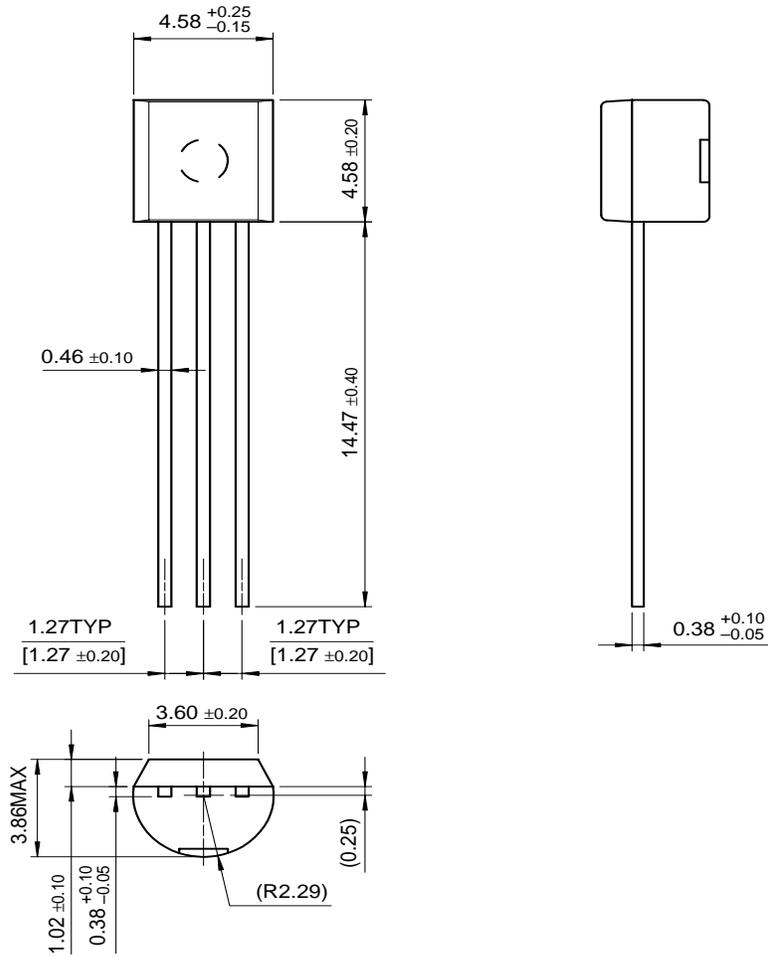


Figure 8. Power Derating

# Package Dimensions

KSD5041

## TO-92



Dimensions in Millimeters

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CoolFET <sup>™</sup>	FAST <sup>r</sup> <sup>™</sup>	MicroFET <sup>™</sup>	PowerTrench <sup>®</sup>	SuperSOT <sup>™</sup> -6
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