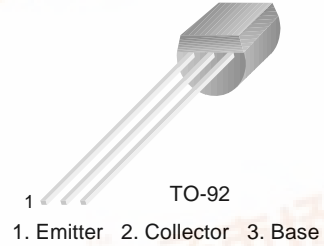


FAIRCHILD
SEMICONDUCTOR®

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	μA
I_{EBO}	Emitter Cut-off Current	$V_{EB}=7\text{V}, I_C=0$			0.1	μA
h_{FE1}	DC Current Gain	$V_{CE}=2\text{V}, I_C=0.5\text{A}$	180		600	
h_{FE2}		$V_{CE}=2\text{V}, I_C=2\text{A}$	150			
$V_{CE(sat)}$	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

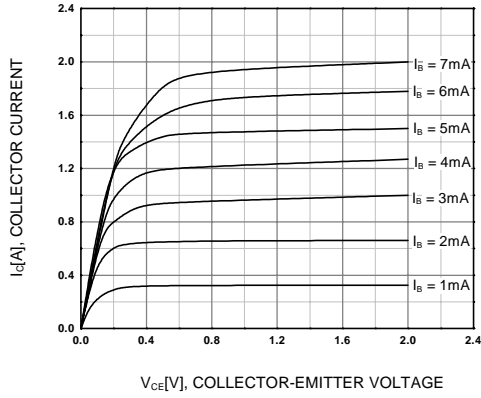


Figure 1. Static Characteristic

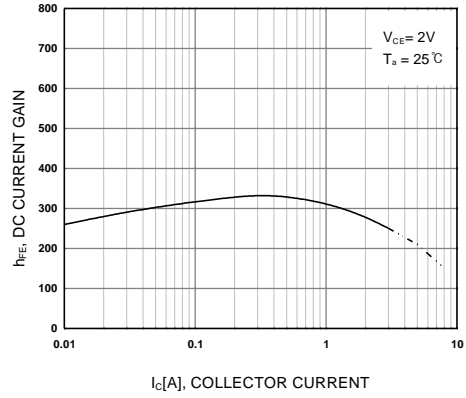


Figure 2. DC current Gain

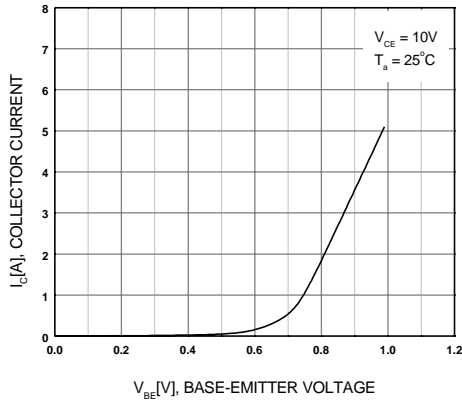


Figure 3. Base-Emitter Saturation Voltage

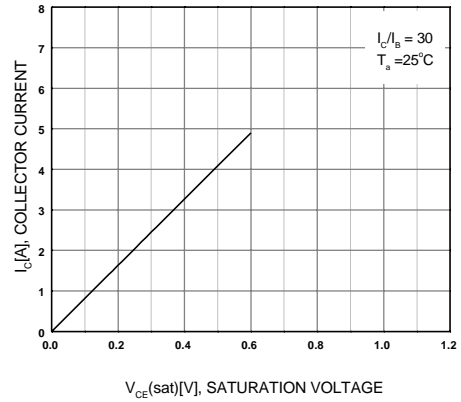


Figure 4. Collector-Emitter Saturation Voltage

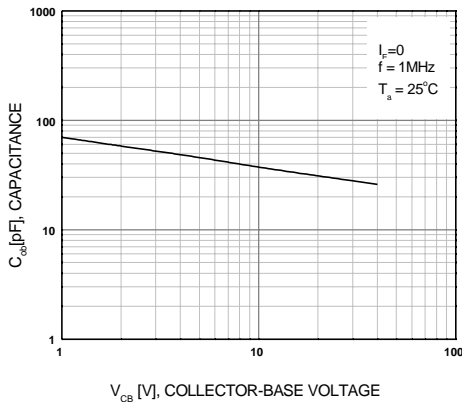


Figure 5. Collector Output Capacitance

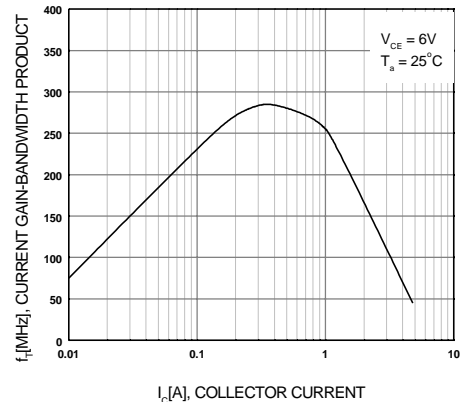


Figure 6. Current Gain Bandwidth Product

Typical Characteristics (Continued)

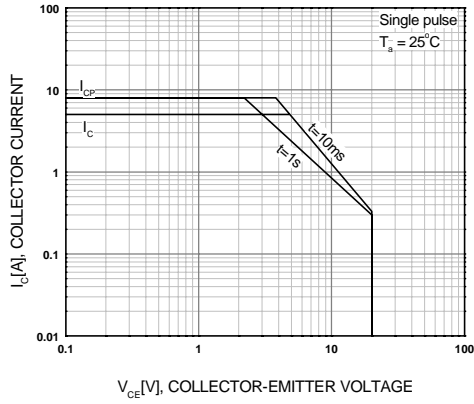


Figure 7. Safe Operating Area

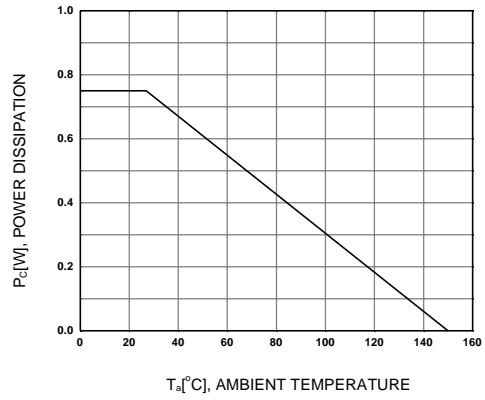
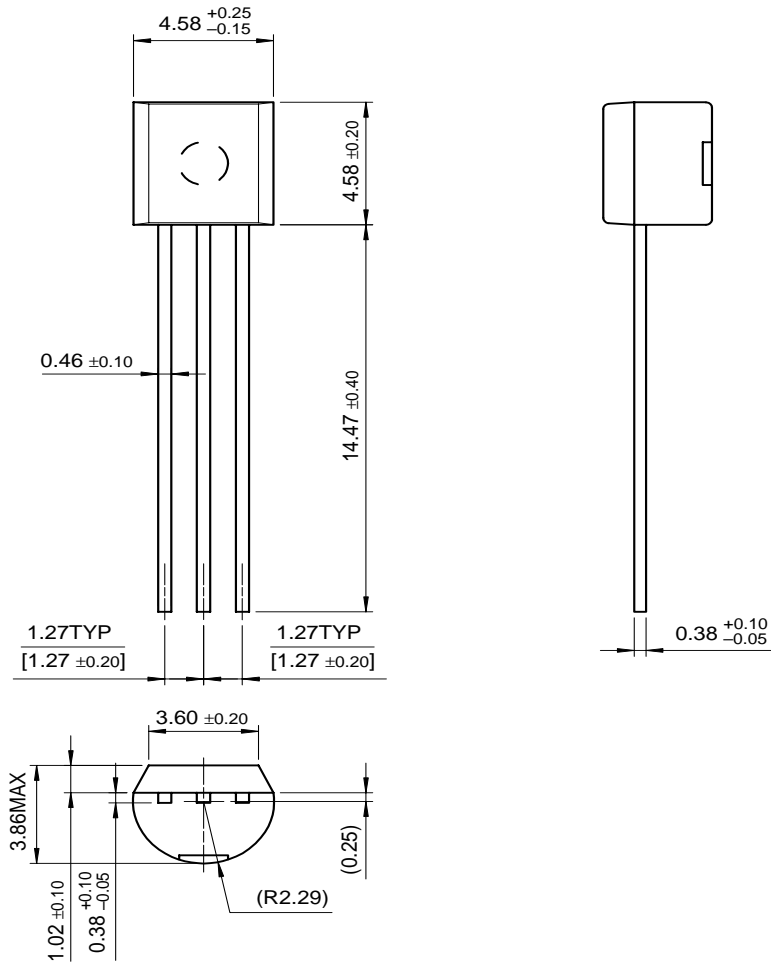


Figure 8. Power Derating

Package Dimensions

TO-92



Dimensions in Millimeters

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CoolFET™	FASTr™	MicroFET™	PowerTrench®	SuperSOT™-6
CROSSVOLT™	FRFET™	MicroPak™	QFET™	SuperSOT™-8
DOMET™	GlobalOptoisolator™	MICROWIRE™	QS™	SyncFET™
EcoSPARK™	GTO™	MSX™	QT Optoelectronics™	TinyLogic™
E ² CMOS™	HiSeC™	MSXPro™	Quiet Series™	TruTranslation™
EnSigna™	I ² C™	OCX™	RapidConfigure™	UHC™
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Programmable Active Droop™		OPTOPLANAR™	SMART START™	

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PRODUCT STATUS DEFINITIONS

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