

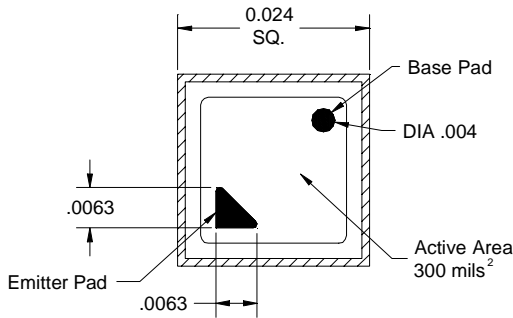
**.025 x .025 Phototransistor  
Medium Gain**

**ET0418**

- FEATURES**
- Spectrally matched to GaAs and GaAlAs emitters
  - High sensitivity
  - Collector voltage to 30V

**DESCRIPTION**

The ET0418 phototransistor is fabricated using silicon planar diffused technology. The die is silicon nitride passivated for reliability, and anti-reflection coated to enhance light absorption. Standard thickness is 15 mils. Die can be probed to special beta requirements, and sawed in various array configurations. Applications include optical encoders and industrial controls.



**Photo not yet available...**

1. Emitter and Base bond pads are aluminum.
2. Backside is metallized with gold.
3. Arrayed die are on .025 centers in X and Y.
4. Dimensions are in inches or mils.

**ABSOLUTE MAXIMUM RATINGS**

Parameter	Symbol	Min.	Max.	Units	Ref.
Operating Temperature Range	$T_A$	-60	125	°C	(Note 1)
Collector-Emitter Voltage	$V_{CE}$	-	30	V	
Emitter-Collector Voltage	$V_{EC}$	-	6	V	
Power Dissipation	$P_D$	-	50	mW	(Note 1)
Continuous Collector Current	$I_C$		50	mA	(Note 1)

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## ELECTRICAL CHARACTERISTICS

Unless otherwise specified, typical values given at  $V_{CE}=5V$ ,  $T_A = 25^{\circ}C$ ,  $h=0mW/cm^2$ .

Parameters	Symbol	Min.	Typ.	Max.	Units	Test Conditions
Collector Dark Current	$I_D$	-	<10	35	nA	$V_{CE} = 10V$
Collector-Emitter Breakdown Voltage	$V_{CE}$	30	-	-	V	$I_C = 100\mu A$
Collector-Base Breakdown Voltage	$V_{CB}$	50	-	-	V	$I_C = 100\mu A$
Emitter-Base Breakdown Voltage	$V_{EB}$	6.0	-	-	V	$I_E = 100nA$
Collector-Emitter Saturation Voltage	$V_{SAT}$	-	85	240	mV	$I_C = 1mA$ , $I_B = 50\mu A$ , (Note 2)
Emitter-Collector Breakdown Voltage	$V_{EC}$	6.0	-	-	V	$I_C = 100\mu A$
Responsivity	R	-	.32	-	A/W	$h = 5 mW/cm^2$ (Note 3)
Current Gain	$h_{FE}$	400	-	1000	-	$I_B = 1\mu A$ (Note 2)

## AC SWITCHING CHARACTERISTICS

Values given at  $V_{CE} = 5V$ ,  $T_A = 25^{\circ}C$ ,  $R_L = 100$  ohms.

Parameters	Symbol	Min.	Typ.	Max.	Units	Test Conditions
Rise Time	$T_R$	-	7	-	$\mu s$	(Note 3)
Fall Time	$T_F$	-	7	-	$\mu s$	(Note 3)

### NOTES:

1. This value is very dependent on the thermal impedance of subsequent packaging techniques.
2. For test, base current is forced at base pad rather than created by illumination.
3. These values are typical for the process and are not tested.

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East Texas Integrated Circuits USA • 1221 W. Campbell Road Suite 115 • Richardson, Texas 75080 • Tel (972) 234-5656 • Fax (972) 234-5657  
Visit our website at [www.easttexasic.com](http://www.easttexasic.com), or send us email at [sales@easttexasic.com](mailto:sales@easttexasic.com).