

.040 x .040 Phototransistor Low-High Gain

ET0415

- ### FEATURES
- Spectrally matched to GaAs and GaAlAs emitters
 - Large photosensitive area
 - High sensitivity
 - Collector voltage to 30V

DESCRIPTION

The ET0415 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.

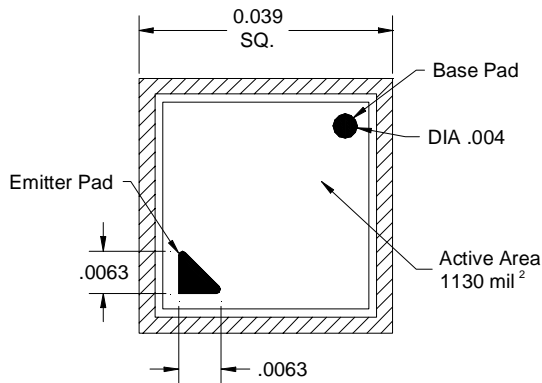


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1. Emitter and Base bond pads are aluminum.
2. Backside is metallized with gold.
3. Arrayed die are on .040 centers in X and Y.
4. Dimensions are in inches or mils.

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	100	nA	$V_{CE} = 10V$
Collector-Emitter Breakdown Voltage	V_{CE}	30	-	-	V	$I_C = 100\mu A$
Collector-Base Breakdown Voltage	V_{CB}	40	-	-	V	$I_C = 100\mu A$
Collector-Emitter Saturation Voltage	V_{SAT}	-	85	350	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}	150	-	4000	-	$I_B = 5\mu A$ (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	-	μs	(Note 3)
Fall Time	T_F	-	7	-	μs	(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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