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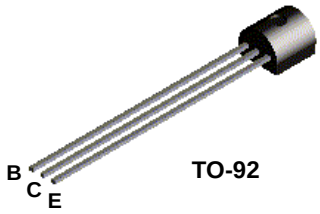
SEMICONDUCTOR TM

2N3415



TO-92

NPN General Purpose Amplifier

This device is designed for use as general purpose amplifiers and switches requiring collector currents to 300 mA. Sourced from Process 10. See PN100A for characteristics.

Absolute Maximum Ratings*

TA = 25°C unless otherwise noted

Symbol	Parameter	Value	Units
V_{CEO}	Collector-Emitter Voltage	25	V
V_{CBO}	Collector-Base Voltage	25	V
V_{EBO}	Emitter-Base Voltage	5.0	V
I_C	Collector Current - Continuous	500	mA
T_J, T_{stg}	Operating and Storage Junction Temperature Range	-55 to +150	°C

*These ratings are limiting values above which the serviceability of any semiconductor device may be impaired.

NOTES:
1) These ratings are based on a maximum junction temperature of 150 degrees C.
2) These are steady state limits. The factory should be consulted on applications involving pulsed or low duty cycle operations.

Thermal Characteristics

TA = 25°C unless otherwise noted

Symbol	Characteristic	Max	Units
		2N3415	
P_D	Total Device Dissipation Derate above 25°C	625 5.0	mW mW/°C
$R_{\theta JC}$	Thermal Resistance, Junction to Case	83.3	°C/W
$R_{\theta JA}$	Thermal Resistance, Junction to Ambient	200	°C/W

NPN General Purpose Amplifier
(continued)

Electrical Characteristics
TA = 25°C unless otherwise noted

Symbol	Parameter	Test Conditions	Min	Max	Units
OFF CHARACTERISTICS					
$V_{(BR)CEO}$	Collector-Emitter Breakdown Voltage*	I_C = 10 mA, I_B = 0	25		V
$V_{(BR)CBO}$	Collector-Base Breakdown Voltage	I_C = 10 µA, I_E = 0	25		V
$V_{(BR)EBO}$	Emitter-Base Breakdown Voltage	I_E = 10 µA, I_C = 0	5.0		V
I_{CBO}	Collector-Cutoff Current	V_{CB} = 25 V, I_E = 0 V_{CB} = 25 V, I_E = 0, T_A = 100°C		0.1 15	µA µA
I_{EBO}	Emitter-Cutoff Current	V_{EB} = 5.0 V, I_C = 0		0.1	µA
ON CHARACTERISTICS*					
h_{FE}	DC Current Gain	V_{CE} = 4.5 V, I_C = 2.0 mA	180	540	
$V_{CE(sat)}$	Collector-Emitter Saturation Voltage	I_C = 50 mA, I_B = 3.0 mA		0.3	V
$V_{BE(sat)}$	Base-Emitter Saturation Voltage	I_C = 50 mA, I_B = 3.0 mA	0.6	1.3	V
SMALL SIGNAL CHARACTERISTICS					
h_{fe}	Small-Signal Current Gain	I_C = 2.0 mA, V_{CE} = 4.5 V, f = 1.0 kHz	180		

*Pulse Test: Pulse Width ≤ 300 µs, Duty Cycle ≤ 2.0%

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