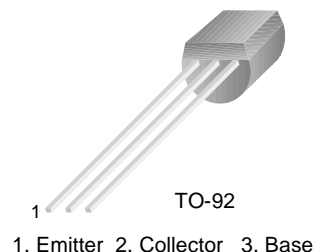


2N3859A

2N3859A

NPN General Purpose Amplifier

- This device designed for use as general purpose amplifier and switches requiring collector currents to 300mA.
- Sourced from Process 10.
- See PN100 for characteristics.



NPN Epitaxial Silicon Transistor

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

Symbol	Parameter	Value	Units
V_{CEO}	Collector-Emitter Voltage	60	V
V_{CBO}	Collector-Base Voltage	60	V
V_{EBO}	Emitter-Base Voltage	6.0	V
I_C	Collector Current - Continuous	500	mA
T_J, T_{ST}	Operating and Storage Junction Temperature Range	-55 ~ +150	$^\circ\text{C}$

* 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.

Electrical Characteristics $T_a=25^\circ\text{C}$ unless otherwise noted

Symbol	Parameter	Test Condition	Min.	Typ.	Max.	Units
Off Characteristics						
$BV_{(BR)CEO}$	Collector-Emitter Breakdown Voltage	$I_C = 1.0\text{mA}, I_B = 0$	60			V
$BV_{(BR)CBO}$	Collector-Base Breakdown Voltage	$I_C = 100\mu\text{A}, I_E = 0$	60			V
$BV_{(BR)EBO}$	Emitter-Base Breakdown Voltage	$I_E = 100\mu\text{A}, I_C = 0$	6.0			V
I_{CBO}	Collector Cut-off Current	$V_{CB} = 18\text{V}, I_E = 0$			0.5	μA
I_{EBO}	Emitter Cut-off Current	$V_{EB} = 4.0\text{V}, I_C = 0$			0.5	μA
On Characteristics *						
h_{FE}	DC Current Gain	$V_{CE} = 1.0\text{V}, I_C = 1.0\text{mA}$ $V_{CE} = 1.0\text{V}, I_C = 1.0\text{mA}$	75 100		200	
Small Signal Characteristics						
C_{ob}	Current Gain Bandwidth Product	$V_{CB} = 10\text{V}, f = 1.0\text{MHz}$			4	pF
f_T	Output Capacitance	$I_C = 2.0\text{mA}, V_{CE} = 10\text{V}$	90		250	MHz
$\tau_b'C_c$	Collector-Base Time Constant	$V_{CE} = 10\text{V}, I_C = 2.0\text{mA}$ $f = 31.9\text{MHz}$			150	pS

* Pulse Test: Pulse $\leq 300\mu\text{s}$, Duty Cycle $\leq 2.0\%$

Thermal Characteristics $T_A=25^\circ\text{C}$ unless otherwise noted

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

Package Dimensions

TO-92



Dimensions in Millimeters

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CoolFET™	FASTr™	MicroFET™	PowerTrench®	SuperSOT™-6
CROSSVOLT™	FRFET™	MicroPak™	QFET™	SuperSOT™-8
DOVE™	GlobalOptoisolator™	MICROWIRE™	QS™	SyncFET™
EcoSPARK™	GTO™	MSX™	QT Optoelectronics™	TinyLogic™
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PRODUCT STATUS DEFINITIONS

Definition of Terms

Datasheet Identification	Product Status	Definition
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