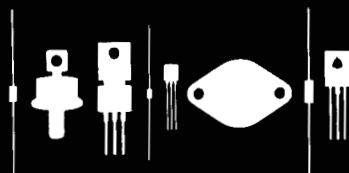


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145 Adams Avenue
Hauppauge, New York 11788



2N5859

NPN SILICON SWITCHING TRANSISTOR

JEDEC TO-39 CASE

DESCRIPTION

The CENTRAL SEMICONDUCTOR 2N5859 is an NPN silicon core driver transistor manufactured by the epitaxial planar process designed for high current and high speed switching applications.

MAXIMUM RATINGS ($T_A=25^{\circ}\text{C}$ unless otherwise noted)

	SYMBOL		UNIT
Collector-Base Voltage	V_{CB0}	80	V
Collector-Emitter Voltage	V_{CE0}	40	V
Emitter-Base Voltage	V_{EB0}	6.0	V
Collector Current	I_C	2.0	A
Power Dissipation	P_D	1.0	W
Power Dissipation ($T_C=25^{\circ}\text{C}$)	P_D	5.0	W
Operating and Storage			
Junction Temperature	T_J, T_{STG}	-65 to +200	$^{\circ}\text{C}$
Thermal Resistance	θ_{JA}	175	$^{\circ}\text{C/W}$
Thermal Resistance	θ_{JC}	35	$^{\circ}\text{C/W}$

ELECTRICAL CHARACTERISTICS ($T_A=25^{\circ}\text{C}$ unless otherwise noted)

SYMBOL	TEST CONDITIONS	MIN	MAX	UNIT
I_{CEV}	$V_{CE}=50\text{V}, V_{BE}(\text{OFF})=2.0\text{V}$		0.20	μA
I_{CEV}	$V_{CE}=50\text{V}, V_{BE}(\text{OFF})=2.0\text{V}, T_A=75^{\circ}\text{C}$		5.0	μA
I_{CB0}	$V_{CB}=50\text{V}$		0.25	μA
I_{CB0}	$V_{CB}=50\text{V}, T_A=75^{\circ}\text{C}$		5.0	μA
I_{EB0}	$V_{BE}=5.0\text{V}$		0.10	μA
BV_{CB0}	$I_C=100\mu\text{A}$	80		V
BV_{CE0}	$I_C=10\text{mA}$	40		V
BV_{EB0}	$I_E=10\mu\text{A}$	6.0		V
$V_{CE}(\text{SAT})$	$I_C=500\text{mA}, I_B=50\text{mA}$		0.40	V
$V_{CE}(\text{SAT})$	$I_C=1.0\text{A}, I_B=100\text{mA}$		0.70	V
$V_{BE}(\text{SAT})$	$I_C=500\text{mA}, I_B=50\text{mA}$	0.8	1.0	V
$V_{BE}(\text{SAT})$	$I_C=1.0\text{A}, I_B=100\text{mA}$	0.9	1.25	V
h_{FE}	$V_{CE}=1.0\text{V}, I_C=500\text{mA}$	30	120	
h_{FE}	$V_{CE}=1.0\text{V}, I_C=1.0\text{A}$	15	100	
h_{FE}	$V_{CE}=1.0\text{V}, I_C=1.0\text{A}, T_A=-55^{\circ}\text{C}$	10	-	
f_T	$V_{CE}=10\text{V}, I_C=50\text{mA}, f=100\text{MHz}$	250	-	MHz
C_{ob}	$V_{CB}=10\text{V}, I_E=0, f=100\text{kHz}$	-	7.0	pF
C_{ib}	$V_{EB}=0.5\text{V}, I_C=0, f=100\text{kHz}$	-	60	pF
t_{ON}	$V_{CC}=30\text{V}, V_{BE}(\text{OFF})=2.0\text{V}, I_C=1.0\text{A}, I_{B1}=100\text{mA}$		35	ns
t_r	$V_{CC}=30\text{V}, V_{BE}(\text{OFF})=2.0\text{V}, I_C=1.0\text{A}, I_{B1}=100\text{mA}$		30	ns
t_d	$V_{CC}=30\text{V}, V_{BE}(\text{OFF})=2.0\text{V}, I_C=1.0\text{A}, I_{B1}=100\text{mA}$		6.0	ns
t_{OFF}	$V_{CC}=30\text{V}, I_C=1.0\text{A}, I_{B1}=I_{B2}=100\text{mA}$		60	ns
t_s	$V_{CC}=30\text{V}, I_C=1.0\text{A}, I_{B1}=I_{B2}=100\text{mA}$		35	ns
t_f	$V_{CC}=30\text{V}, I_C=1.0\text{A}, I_{B1}=I_{B2}=100\text{mA}$		35	ns

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