

New Jersey Semi-Conductor Products, Inc.

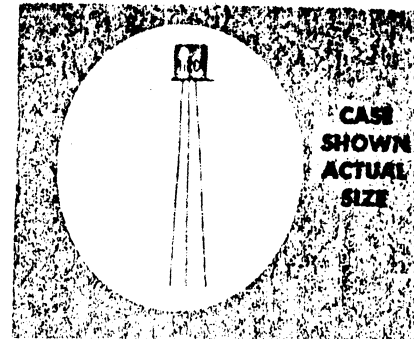
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2N859,

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DESCRIPTION

The 2N859, 2N861, 2N863 and 2N865 are Silicon Precision Alloy Transistors (SPAT)* intended for control circuits, medium speed switching applications and high gain amplifiers. The homogeneous base of these transistors provides a high reverse bias emitter-base diode rating. The units feature low saturation resistance, high beta and low cutoff currents. High and low temperature performance are guaranteed by a saturation current test at 125°C and a beta test at -55°C. These transistors have the polarity of PNP devices.



ABSOLUTE MAXIMUM RATINGS (NOTE 1)

Storage Temperature	-65°C to +140°C
Total Device Dissipation at 25°C (Note 2)	150 mw
Lead Temperature, at 1/16" ± 1/32" from case	230°C for 10 sec
Collector Current, I _C	-50 ma

	2N859	2N861	2N863	2N865	
Collector Voltage, V _{CB}	-40	-25	-15	-10	volts
Collector Voltage, V _{CEO}	-40	-25	-15	-6	volts
Emitter Voltage, V _{EB}	-25	-20	-10	-10	volts

ELECTRICAL CHARACTERISTICS (T = 25°C)

Static Characteristics	2N859			2N861			2N863			2N865			Units
	Min.	Typ.	Max.	Min.	Typ.	Max.	Min.	Typ.	Max.	Min.	Typ.	Max.	
Collector Cutoff Current, I _{CO} (V _{CB} = -10v)			0.1			0.1			0.1			0.1	μA
Collector Cutoff Current, I _{CO} (V _{CB} = -10v, T = 125°C)			15			15			15			15	μA
Collector Breakdown Voltage, BV _{CEO} (I _O = -1 μA) Note 3	40			25			15					15	volts
Collector Breakdown Voltage, BV _{CEO} (I _{CEO} = -25 μA) Note 3	40			25			15					15	volts
Emitter Current, I _{EB0} (V _{EB} = -10v)									0.1			6	volts
Emitter Current, I _{EB0} (V _{EB} = -20v)						1						0.1	μA
Emitter Current, I _{EB0} (V _{EB} = -25v)			1										μA
DC Current Amplification Factor, h _{FB} (V _{CB} = -0.5v, I _C = -5 ma)	25	35	100	25	35	75	25	35	100	45	75	125	
DC Current Amplification Factor, h _{FB} (V _{CE} = -0.5v, I _C = -5 ma, T = -55°C)	16	23		16	23		16	23		35	55		
Collector Saturation Voltage, V _{CE} (SAT) (I _C = -5 ma, I _B = -0.5 ma)		.06	0.15		.06	0.15		.06	0.15		.05	0.1	volts
Base Voltage, V _{BE} (I _O = -5 ma, I _B = -0.5 ma)	0.75	0.81	1.0	0.75	0.81	1.0	0.75	0.81	0.95	0.75	0.8	1.0	volts
Small Signal Parameters (V _{CB} = -6v, I _B = 1 ma)													
Input Resistance, h _{ie}		2.5			2.5			2.5			5		kohms
Output Conductance, h _{oe}		50			50			50			110		μmhos
Current Amplification Factor, h _{FE}	30	65	120	30	65	100	40	65	120	100	150	350	
Voltage Feedback Ratio, h _{re}		3.5			3.5			3.5			6.5		x10 ⁻⁴
High Frequency Characteristics													
Output Capacitance, C _{ob} (V _{CB} = -6v, I _B = 0, f = 4 mc)		5	9		5	9		5	9		5	9	pf
Input Capacitance, C _{ib} (V _{EB} = -6v, I _C = 0, f = 4 mc)		4	7		4	7		4	7		4	7	pf
Gain Bandwidth Product, f _T (V _{CB} = -6v, I _B = 1 ma)	6	14		7.5	22		10	22		24	52		mc
Real Part of Input Impedance, R _e (h _{ie}) (V _{CB} = -6v, I _B = 1 ma, f = 100 mc)		350	700		350	700		350	700		350	700	ohms
Switching Characteristics													
Rise Time, t _r (in circuit of figure 1)		125	250		105	210		90	175		50	100	nsec
Storage Time, t _s (in circuit of figure 2)		75	150		75	150		75	150		75	150	nsec
Fall Time, t _f (in circuit of figure 2)		125	250		105	210		90	175		50	100	nsec

REFER TO SUPPLEMENT 3 for curves, circuit diagrams and application information.

Typical values are not guaranteed and appear for guidance only.

*Trademark Philco Corp

All of the ratings and specifications are registered with EIA