

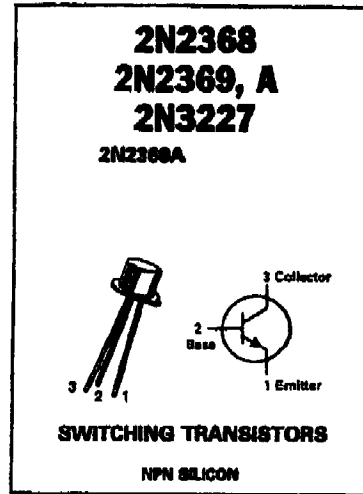
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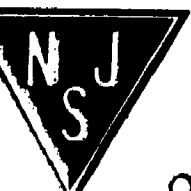
MAXIMUM RATINGS

Rating	Symbol	Value	Unit
Collector-Emitter Voltage 2N2368, 9, A 2N3227	V _{CEO}	15 20	V _{dc}
Collector-Emitter Voltage	V _{CEB}	40	V _{dc}
Collector-Base Voltage	V _{CBO}	40	V _{dc}
Emitter-Base Voltage 2N2368, 9, A 2N3227	V _{EB0}	4.5 6.0	V _{dc}
Collector Current (10 μs pulse)	I _{C(Peak)}	500	mA
Collector Current — Continuous 2N2368A, 2N3227	I _C	200	mA
Total Device Dissipation @ T _A = 25°C Derate above 25°C	P _D	0.36 2.06	Watt mW/°C
Total Device Dissipation @ T _C = 25°C Derate above 25°C	P _D	1.2 6.85	Watts mW/°C
Total Device Dissipation @ T _C = 100°C Derate above 100°C	P _D	.68 6.85	Watts mW/°C
Operating and Storage Junction Temperature Range	T _{J, Tstg}	-55 to +200	°C



ELECTRICAL CHARACTERISTICS (T_A = 25°C unless otherwise noted.)

Characteristic	Symbol	Min	Max	Unit
OFF CHARACTERISTICS				
Collector-Emitter Breakdown Voltage(1) (I _C = 10 mA _{dc} , V _{BE} = 0)	V _{(BR)CEO}	20	—	V _{dc}
Collector-Emitter Breakdown Voltage (I _C = 10 μA, V _{BE} = 0)	V _{(BR)CEB}	40	—	V _{dc}
Collector-Emitter Sustaining Voltage(1) (I _C = 10 mA _{dc} , I _B = 0)	V _{CEO(sust)}	15	—	V _{dc}
Collector-Base Breakdown Voltage (I _C = 10 μA, I _B = 0)	V _{(BR)CBO}	40	—	V _{dc}
Emitter-Base Breakdown Voltage (I _E = 10 μA _{dc} , I _C = 0)	V _{(BR)EBO}	4.5 6.0	—	V _{dc}
Collector Cutoff Current (V _{CE} = 20 V _{dc} , V _{BE} = 3.0 V _{dc})	I _{CEX}	—	0.2	μA _{dc}
Collector Cutoff Current (V _{CE} = 20 V _{dc} , I _B = 0)	I _{CBO}	—	0.4 0.2	μA _{dc}
(V _{CE} = 20 V _{dc} , I _B = 0, T _A = 150°C)		—	30 50	
Collector Cutoff Current (V _{CE} = 20 V _{dc} , V _{BE} = 0)	I _{CES}	—	0.4	μA _{dc}
Base Current (V _{CE} = 20 V _{dc} , V _{BE} = 0)	I _B	—	0.4	μA _{dc}
ON CHARACTERISTICS				
DC Current Gain(1) (I _C = 10 mA _{dc} , V _{CE} = 1.0 V _{dc})	h _{FE}	20 40 — 100	60 120 120 300	—
(I _C = 10 mA _{dc} , V _{CE} = 1.0 V _{dc} , T _A = -55°C)		10 20 40	— — —	
(I _C = 10 mA _{dc} , V _{CE} = 0.35 V _{dc} , T _A = -55°C)		20	—	
(I _C = 30 mA _{dc} , V _{CE} = 0.4 V _{dc})		30	—	



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Quality Semi-Conductors

2N2368, 2N2369, A, 2N3227

ELECTRICAL CHARACTERISTICS (continued) (T_A = 25°C unless otherwise noted.)

Characteristic	Symbol	Min	Max	Unit
(I _C = 100 mA, V _{CE} = 1.0 Vdc)	2N2369A 2N3227	20 30	— —	
(I _C = 100 mA, V _{CE} = 2.0 Vdc)	2N2368 2N2369	10 20	— —	
Collector-Emitter Saturation Voltage(1) (I _C = 10 mA, I _B = 1.0 mA)	2N2368, 2N2369, 2N3227 2N2369A	— —	0.25 0.20	Vdc
(I _C = 10 mA, I _B = 1.0 mA, T _A = +125°C)	2N2369A	—	0.30	
(I _C = 30 mA, I _B = 3.0 mA)	2N2369A	—	0.25	
(I _C = 100 mA, I _B = 10 mA)	2N2369A 2N3227	— —	0.50 .45	
Base-Emitter Saturation Voltage(1) (I _C = 10 mA, I _B = 1.0 mA)	All Types	0.70	0.85	Vdc
(I _C = 10 mA, I _B = 1.0 mA, T _A = +125°C)	2N2369A	0.60	—	
(I _C = 10 mA, I _B = 1.0 mA, T _A = -55°C)	2N2369A	—	1.02	
(I _C = 30 mA, I _B = 3.0 mA)	2N2369A	—	1.15	
(I _C = 100 mA, I _B = 10 mA)	2N2369A 2N3227	— —	1.60 1.4	

SMALL-SIGNAL CHARACTERISTICS

Current-Gain — Bandwidth Product (I _C = 10 mA, V _{CE} = 10 Vdc, f = 100 MHz)	2N2368 2N2369, 2N2369A, 2N3227	f _T	400 500	— —	MHz
Output Capacitance (V _{CE} = 5.0 Vdc, I _E = 0, f = 140 kHz)	All Types	C _{obo}	—	4.0	pF
Input Capacitance (V _{BE} = 1.0 Vdc, I _C = 0, f = 140 kHz)	2N3227	C _{ibo}	—	4.0	pF

SWITCHING CHARACTERISTICS

Delay Time	(V _{CC} = 10 V, V _{BE} = 2.0 Vdc, 100 mA, I _{B1} = 10 mA)	2N3227	t _d	—	8.0	ns
Rise Time			t _r	—	18	ns
Storage Time	(I _C = I _{B1} = 10 mA, I _{B2} = -10 mA) (I _C = 100 mA, I _{B1} = I _{B2} = 10 mA, V _{CC} = 10 V)	2N2368 2N2369A 2N3227	t _s	— — —	10 13 13	ns
Fall Time	(V _{CC} = 10 V, I _C = 100 mA, I _{B1} = I _{B2} = 10 mA)	2N3227	t _f	—	18	ns
Turn-On Time	(I _C = 10 mA, I _{B1} = 3.0 mA, I _{B2} = -1.5 mA, V _{CC} = 3.0 Vdc)	All Types	t _{on}	—	12	ns
Turn-Off Time	(I _C = 10 mA, I _{B1} = 3.0 mA, I _{B2} = -1.5 mA, V _{CC} = 3.0 Vdc)	2N2368 2N2369, 2N2369A, 2N3227	t _{off}	— — — —	— — 18 18	ns
Total Control Charge	(I _C = 10 mA, I _B = 1.0 mA, V _{CC} = 3.0 V)	2N3227	Q _T	—	50	pC

(1) Pulse Test: Pulse Width < 300 μs, Duty Cycle < 2.0%.