

New Jersey Semi-Conductor Products, Inc.

20 STERN AVE.
SPRINGFIELD, NEW JERSEY 07081
U.S.A.

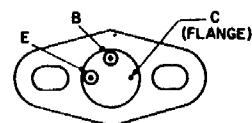
TELEPHONE: (973) 376-2922
(212) 227-6005
FAX: (973) 376-8960

2N3439; 2N3440; 2N4063; 2N4064; 40385; 40346, V1, V2; 40390; 40412, V1, V2 High-Voltage Silicon N-P-N Transistors

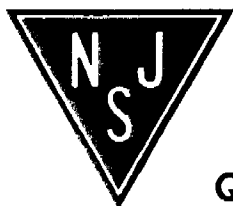
	2N3439 2N4063 40385	2N3440 2N4064 40390	40346 40346V1 40346V2	40412 40412V1 40412V2	
MAXIMUM RATINGS, Absolute-Maximum Values:					
*COLLECTOR-TO-BASE VOLTAGE V_{CBO}	450	300	—	—	V
COLLECTOR-TO-EMITTER VOLTAGE:					
With external base-to-emitter resistance					
(R_{BE}) = 1,000 Ω $V_{CER(sus)}$	—	—	175	—	V
= 10,000 Ω $V_{CER(sus)}$	—	—	—	250	V
* With base open $V_{CEO(sus)}$	350	250	—	—	V
*EMITTER-TO-BASE VOLTAGE V_{EBO}	7	7	—	—	V
*CONTINUOUS COLLECTOR CURRENT I_C	1	1	1	1	A
*CONTINUOUS BASE CURRENT I_B	0.5	0.5	0.5	0.5	A
TRANSISTOR DISSIPATION: P_T					
At case temperature up to 25°C	10	10(2N3440) 10(2N4064)	10(40346) 10(40346V2)	10(40412) 10(40412V2)	W
At free-air temperatures up to 25°C	1(40385)	3.5(40390)	4(40346V1)	4(40412V1)	W
At free-air temperatures up to 50°C	1(2N3439)	1(2N3440)	1(40346)	1(40412)	W
At free-air temperatures above 25°C or 50°C	Derate linearly to 200°C				°C
*TEMPERATURE RANGE:					
Storage & Operating (Junction)	—65 to 200				°C
*LEAD TEMPERATURE (During soldering):					
At distances $\geq 1/32$ in (0.79 mm)					
from seating plane for 10 s max.	255				°C

*2N-Series types in accordance with JEDEC registration data

NOTE: P_T value of 10 W at $T_C = 25^\circ\text{C}$ and lead temperature of 255°C are registered data for 2N4063 and 2N4064 only.



JEDEC TO-39 with Flange
2N4063, 2N4064, 40346V2,
40412V2



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Quality Semi-Conductors

**2N3439; 2N3440; 2N4063; 2N4064; 40385;
40346, V1, V2; 40390; 40412, V1, V2**

ELECTRICAL CHARACTERISTICS, Case Temperature (T_C) = 25°C, Unless Otherwise Specified

CHARACTERISTICS	SYMBOL	VOLTAGE		CURRENT	LIMITS								UNITS
		V dc			2N3439 2N4063 40385		2N3440 2N4064 40390		40346 40346V1 40346V2		40412 40412V1 40412V2		
		V _{CE}	V _{BE}		I _C	MIN.	MAX.	MIN.	MAX.	MIN.	MAX.	MIN.	
Collector-Cutoff Current: With base open	I _{CEO}	100 200 300	—		— — —	— — 20	— — —	— 50 —	— — —	5 — —	— — —	5 — —	μA
With base reverse-biased:	I _{CEV}	200 300 450	— 1.5 — 1.5 — 1.5		— — —	— — 500	— — —	— 500 —	— — —	10 — —	— — —	— — —	
At T _C = 150°C		150 200	— 1.5 — 1.5		— —	— —	— —	— —	— —	— 1	— —	2 —	
With R = 10,000 ohms	I _{CER}	100			—	—	—	—	—	—	—	1	mA
Emitter-Cutoff Current	I _{EBO}		— 3 — 4 — 6		— — —	— — 20	— — —	— — 20	— — —	— 5 —	— — —	100 — —	μA
DC Forward-Current Transfer Ratio	h _{FE}	10 10 10 20		2 10 20 30	30 — 40 —	— — 160 —	— — 40 —	— — 160 —	— 25 — —	— — — —	— — — 40	— — — —	
Collector-to-Emitter Sustaining Voltage: With base open	V _{CEO(sus)}			50	350 ^a	—	250 ^a	—	—	—	—	—	V
Collector-to-Emitter Sustaining Voltage: With external base-to- emitter resistance R _{BE} = 1,000 ohms	V _{CER(sus)}			50	—	—	—	—	175 ^a	—	—	—	
R _{BE} = 10,000 ohms	V _{CER(sus)}			50	—	—	—	—	—	—	250 ^a	—	
Base-to-Emitter Voltage	V _{BE}	10		10	—	—	—	—	—	1	—	—	V
Base-to-Emitter Saturation Voltage I _B = 4 mA	V _{BE(sat)}			50	—	1.3	—	1.3	—	—	—	—	V
Collector-to-Emitter Saturation Voltage I _B = 1 mA I _B = 4 mA	V _{CE(sat)}			10 50	— —	— 0.5	— —	— 0.5	— —	0.5 —	— —	0.5 —	V
Small-Signal Forward- Current Transfer Ratio: f = 5 MHz	h _{fe}	10		10	3	—	3	—	2	—	2	—	
Output Capacitance: V _{CB} = 10 V, f = 1 MHz	C _{ob}				—	10	—	10	—	10	—	10	pF
Second-Breakdown Current	I _{S/b}	200			—	—	—	—	—	—	50	—	mA
Thermal Resistance: Junction-to-case	R _{θJC}				—	17.5	—	17.5	15 max. (40346) (40346V2)		15 max. (40412) (40412V2)		°C/W
Junction-to-free air	R _{θJFA}				—	—	—	—	45 max. (40346V1)		45 max. (40412V1)		

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*CAUTION: The sustaining voltages, $V_{CEO(sus)}$ and $V_{CER(sus)}$, MUST NOT be measured on a curve tracer