New Jersey Semi-Conductor Products, Inc.

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IR413 (SILICON)

TO-3

Collector connected to case

PIN 1. BASE
2. COLLECTOR

High-voltage NPN silicon transistors designed for medium-to-high-voltage inverters, converters, regulators and switching circuits.

MAXIMUM RATINGS

Rating	Symbol		Unit
Collector-Emitter Voltage	V_{CEX}	400	Vdc
Collector-Base Voltage	V_{CB}	400	Vdc
Emitter-Base Voltage	V_{EB}		Vdc
Collector Current — Continuous	I_C	10	Adc
Base Current	I_B	2.0	Adc
Total Device Dissipation @ T_C = 25°C Derate above 25°C	P_D	125 1.)	Watts W/°C
Operation Junction Temperature Range	T_J	-65 to +150	°C
Storage Temperature Range	T_{stg}	-65 to +200	°C

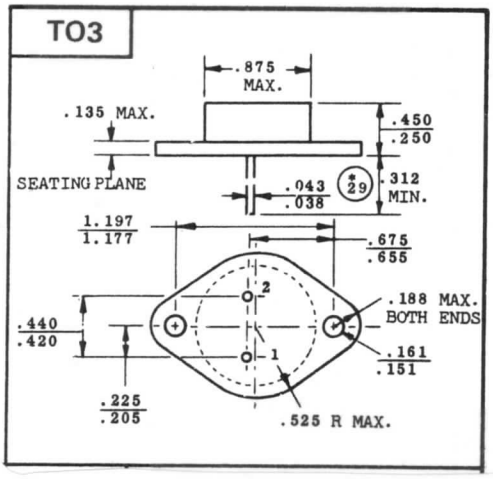
THERMAL CHARACTERISTICS

Characteristic	Symbol	Max	Unit
Thermal Resistance, Junction to Case	θ_{JC}	1.0	°C/W

ELECTRICAL CHARACTERISTICS (T_C = 25°C unless otherwise noted)

Characteristic	Symbol	Min	Max	Unit
OFF CHARACTERISTICS				
Collector-Emitter Sustaining Voltage (1) (I_C = 100 mAdc, I_B = 0)	$BV_{CEO(sus)}$	325	—	Vdc
Collector Cutoff Current (V_{CE} = 400 Vdc, $V_{EB(off)}$ = 1.5 Vdc)	I_{CEX}	—	0.25	mAdc
(V_{CE} = 400 Vdc, $V_{EB(off)}$ = 1.5 Vdc, T_C = 125°C)		—	0.5	mAdc
Emitter Cutoff Current (V_{BE} = 5.0 Vdc, I_C = 0)	I_{EBO}	— —	5.0	mAdc
ON CHARACTERISTICS				
DC Current Gain(1) (I_C = 0.5 Adc, V_{CE} = 5.0 Vdc) (I_C = 1.0 Adc, V_{CE} = 5.0 Vdc)	h_{FE}	20 15	80 —	—
Collector-Emitter Saturation Voltage (1) (I_C = 0.5 Adc, I_B = 0.05 Adc)	$V_{CE(sat)}$	—	0.8	Vdc
Base-Emitter Saturation Voltage (1) (I_C = 0.5 Adc, I_B = 0.05 Adc)	$V_{BE(sat)}$	—	1.25	Vdc
DYNAMIC CHARACTERISTICS				
Current-Gain — Bandwidth Product (I_C = 200 mAdc, V_{CE} = 10Vdc, f = 1.0 MHz)	f_T	2.5	—	MHz

(1) PW ≤ 300 μs, Duty Cycle ≤ 2.0%


TO3
.875
MAX.
.135 MAX.
.450
.250
SEATING PLANE
.043
.038
*29
.312
MIN.
1.197
1.177
.675
.655
2
.188 MAX.
BOTH ENDS
.440
.420
1
.161
.151
.225
.205
.525 R MAX.