New Jersey Semi-Conductor Products, Inc.

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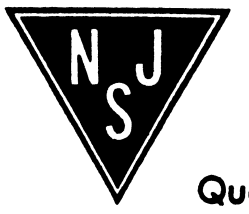
THERMAL DATA

$R_{th\ j\text{-}case}$	Thermal resistance junction-case	max	1.25	°C/W

ELECTRICAL CHARACTERISTICS (T_{case} = 25 °C unless otherwise specified)

Parameter		Test conditions	Min.	Typ.	Max.	Unit
I_{CEV}	Collector cutoff current (V_{BE} = -1.5 V)	for **2N5671** V_{CE} = 110 V for **2N5672** V_{CE} = 135 V V_{CE} = 100V T_{case} = 150°C for **2N5671** for **2N5672**			12 10 15 10	mA mA mA mA
I_{CEO}	Collector cutoff current (I_B = 0)	V_{CE} = 80 V			10	mA
I_{EBO}	Emitter cutoff current (I_C = 0)	V_{EB} = 7 V			10	mA
$V_{CEX\ (sus)}$*	Collector-emitter sustaining voltage (V_{BE} = -1.5V, R_{BE} = 50Ω)	I_C = 200 mA for **2N5671** for **2N5672**	120 150			V V
$V_{CER\ (sus)}$*	Collector-emitter sustaining voltage (R_{BE} = 50 Ω)	I_C = 200mA for **2N5671** for **2N5672**	110 140			V V
$V_{CEO\ (sus)}$*	Collector-emitter sustaining voltage (I_B = 0)	I_C = 200mA for **2N5671** for **2N5672**	90 120			V V
$V_{CE\ (sat)}$*	Collector-emitter saturation voltage	I_C = 15 A I_B = 1.2 A			0.75	V
$V_{BE\ (sat)}$*	Base-emitter saturation voltage	I_C = 15 A I_B = 1.2 A			1.5	V
V_{BE}*	Base-emitter voltage	I_C = 15 A V_{CE} = 5 V			1.6	V
h_{FE}*	DC current gain	I_C = 15 A V_{CE} = 2 V I_C = 20 A V_{CE} = 5 V	20 20		100	— —
f_T	Transition frequency	I_C = 2 A V_{CE} = 10 V	50			MHz



Quality Semi-Conductors

New Jersey Semi-Conductor Products, Inc.

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2N5671, 2N5672

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

CHARACTERISTIC	SYMBOL	TEST CONDITIONS: DC Voltage (V) V_{CB}	V_{CE}	V_{BE}	DC Current (A) I_C	I_B	LIMITS: Type 2N5671 Min.	Max.	Type 2N5672 Min.	Max.	UNITS
* Collector-Cutoff Current	I_{CEO}	–	80	–	–	0	–	10	–	10	mA
*	I_{CEV}	–	110	-1.5	–	–	–	12	–	–	mA
*	I_{CEV}	–	135	-1.5	–	–	–	–	–	10	mA
	(T_C=150° C)	–	100	-1.5	–	–	–	15	–	10	mA
* Emitter-Cutoff Current	I_{EBO}	–	–	-7	0	–	–	10	–	10	mA
Collector-to-Emitter Sustaining Voltage: With base open	$V_{CEO(sus)}$	–	–	–	0.2	0	90[e]	–	120[e]	–	V
With external base-to-emitter resistance (R_{BE}) ≤50 Ω	$V_{CER(sus)}$	–	–	–	0.2	0	110[e]	–	140[e]	–	V
With base-emitter junction reverse biased & R_{BE} ≤ 50 Ω	$V_{CEX(sus)}$	–	–	-1.5	0.2	–	120[e]	–	150[e]	–	V
* Base-to-Emitter Saturation Voltage	$V_{BE(sat)}$	–	–	–	15	1.2	–	1.5	–	1.5	V
Base-to-Emitter Voltage	V_{BE}	–	5	–	15	–	–	1.6	–	1.6	V
* Collector-to-Emitter Saturation Voltage	$V_{CE(sat)}$	–	–	–	15	1.2	–	0.75	–	0.75	V
* DC Forward-Current Transfer Ratio	h_{FE}	–	2	–	15	–	20	100	20	100	
		–	5	–	20	–	20	–	20	–	
Second-Breakdown Collector Current[c] With base forward biased	$I_{S/b}$[b]	–	24	–	–	–	5.8[e]	–	5.8[e]	–	A
		–	45	–	–	–	0.9[e]	–	0.9[e]	–	A
Second-Breakdown Energy With base reverse biased R_{BE} = 20 Ω, L = 180 μH	$E_{S/b}$[d]	–	–	-4	15	–	20	–	20	–	mJ
Gain-Bandwidth Product	f_T	–	10	–	2	–	50	–	50	–	MHz
Output Capacitance (At 1 MHz, I_E=0)	C_{ob}	10	–	–	–	–	–	900	–	900	pF
* Saturated Switching Turn-On Time (Delay Time + Rise Time)	t_{on}	V_{CC}= 30 V	–	–	15	I_{B_1}= I_{B_2}= 1.2	–	0.5	–	0.5	μs
* Saturated Switching Storage Time	t_s	V_{CC}= 30 V	–	–	15	I_{B_1}= I_{B_2}= 1.2	–	1.5	–	1.5	μs
* Saturated Switching Fall Time	t_f	V_{CC}= 30 V	–	–	15	I_{B_1}= I_{B_2}= 1.2	–	0.5	–	0.5	μs
Thermal Resistance (Junction-to-Case)	θ_{J-C}	–	40	–	0.5	–	–	1.25	–	1.25	°C/W

[a]Pulsed; pulse duration ≤ 350 μs, duty factor=0.02.

[b]CAUTION: The sustaining voltages $V_{CEO(sus)}$ and $V_{CEX(sus)}$ MUST NOT be measured on a curve tracer. These sustaining voltages should be measured by means of the test circuit shown in Fig. 5.

[c]$I_{S/b}$ is defined as the current at which second breakdown occurs at a specified collector voltage with the emitter-base junction forward-biased for transistor operation in the active region.*

[d]Pulsed; 1-s, non-repetitive pulse.

[e]$E_{S/b}$ is defined as the energy at which second breakdown occurs under specified reverse-bias conditions. $E_{S/b}$=1/2LI^2 where L is a series load or leakage inductance and I is the peak collector current.

*In accordance with JEDEC registration data format JS-6 RDF-1.

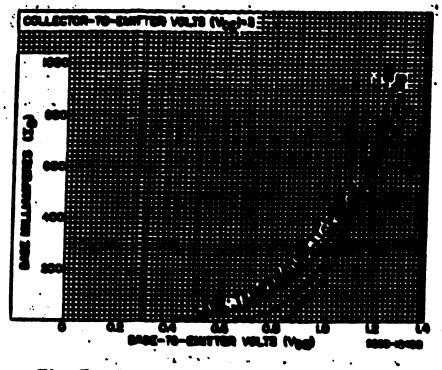


Fig. 5 - Typical input characteristics for types 2N5671 and 2N5672.

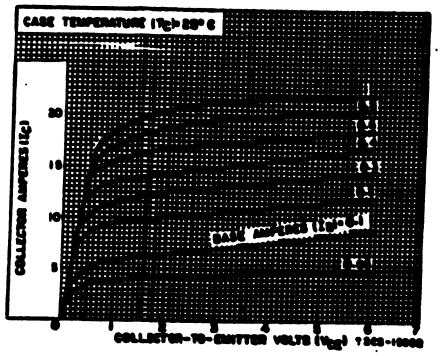


Fig. 6 - Typical output characteristics for types 2N5671 and 2N5672.

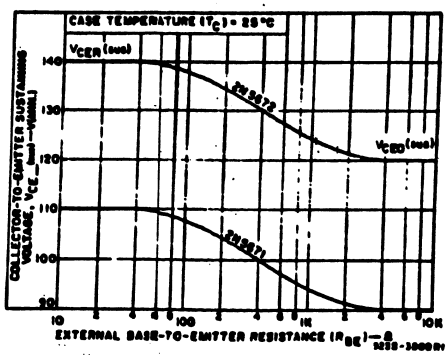


Fig. 7 - Collector-to-emitter sustaining voltage characteristics for types 2N5671 and 2N5672.

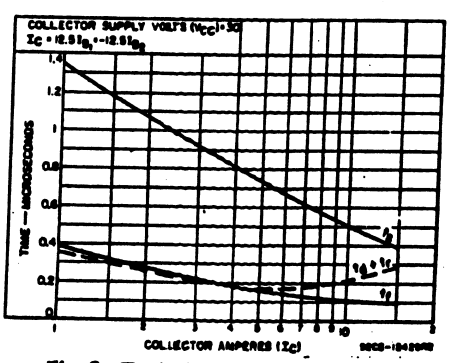
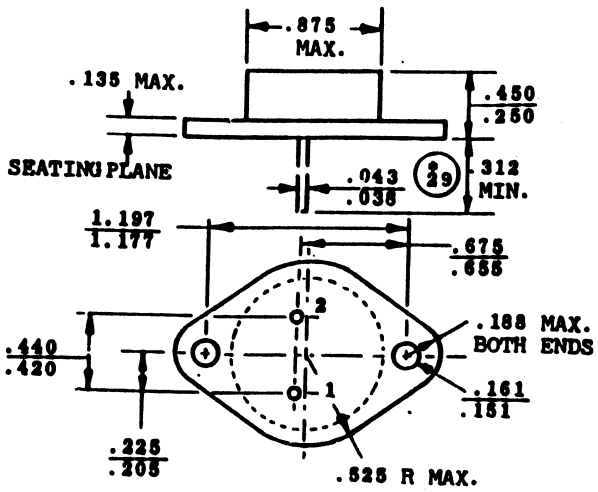


Fig. 8 - Typical saturated switching characteristics for types 2N5671 and 2N5672.


.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.