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2N5455

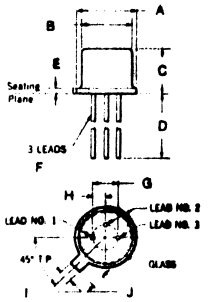
PNP HIGH SPEED SATURATED LOGIC SWITCH

ABSOLUTE MAXIMUM RATINGS (Note 1)

Maximum Temperatures		
Storage Temperature		−65°C to +200°C
Operating Junction Temperature		200°C
Lead Temperature (60 seconds)		300°C
Maximum Power Dissipation (Notes 2 & 3)		
Total Dissipation at 25°C Case Temperature		1.0 W
at 25°C Ambient Temperature		0.34 W
Maximum Voltages and Current		**2N5455**
V_{CBO}	Collector to Base Voltage	−15 V
V_{CES}	Collector to Emitter Voltage	−15 V
V_{EBO}	Emitter to Base Voltage	−4.5 V
V_{CEO}	Collector to Emitter Voltage (Notes 4 & 7)	−15 V
I_C	DC Collector Current	300 mA

PHYSICAL DIMENSIONS

JEDEC (TO-52)



DIM.	INCHES MIN.	INCHES TYP.	INCHES MAX.	MILLIMETERS MIN.	MILLIMETERS TYP.	MILLIMETERS MAX.
A	.209		.230	5.31		5.84
B	.178		.195	4.52		4.96
C	.115		.150	2.96		3.81
D	.500			12.70		
E			.030			0.762
F	.016		.019	0.406		0.483
G		.100			2.54	
H		.050			1.27	
I	.036		.046	0.914		1.17
J	.028		.048	0.711		1.22

NOTES: See table for dimensions in inches and millimeters
Leads are gold-plated kovar
Lead No. 3 connected to case
Package weight is 0.31 grams

NJ Semi-Conductors reserves the right to change test conditions, parameter limits and package dimensions without notice. Information furnished by NJ Semi-Conductors is believed to be both accurate and reliable at the time of going to press. However NJ Semi-Conductors assumes no responsibility for any errors or omissions discovered in its use. NJ Semi-Conductors encourages customers to verify that datasheets are current before placing orders.

ELECTRICAL CHARACTERISTICS (25°C Ambient Temperature unless otherwise noted)

SYMBOL	CHARACTERISTIC	2N5455 MIN.	2N5455 MAX.	UNITS	TEST CONDITIONS
I_{CES}	Collector Cutoff Current		50	nA	$V_{CE} = -10$ V, $V_{BE} = 0$
				nA	$V_{CE} = -15$ V, $V_{BE} = 0$
			50	μA	$V_{CE} = -10$ V, $V_{BE} = 0$, $T_A = 125°C$
				μA	$V_{CE} = -15$ V, $V_{BE} = 0$, $T_A = 125°C$
I_{EBO}	Emitter Cutoff Current		100	μA	$V_{EB} = -4.5$ V, $I_C = 0$
BV_{CBO}	Collector to Base Breakdown Voltage	−15		V	$I_E = 0$, $I_C = 100$ μA
BV_{CES}	Collector to Emitter Breakdown Voltage	−15		V	$I_C = 100$ μA, $V_{BE} = 0$
BV_{EBO}	Emitter to Base Breakdown Voltage	−4.5		V	$I_C = 0$, $I_E = 100$ μA
BV_{CEO}	Collector to Emitter Breakdown Voltage (Note 6)	−15		V	$I_C = 10$ mA
h_{FE}	DC Current Gain (Note 6)	20			$V_{CE} = -0.4$ V, $I_C = 10$ mA
		30	120		$V_{CE} = -0.4$ V, $I_C = 30$ mA
		30			$V_{CE} = -1.0$ V, $I_C = 100$ mA
		25			$V_{CE} = -1.0$ V, $I_C = 300$ mA
		15			$V_{CE} = -1.0$ V, $I_C = 100$ mA, $T_A = -55°C$
$V_{CE(sat)}$	Collector to Emitter Saturation Voltage (Note 6)		−0.15	V	$I_C = 10$ mA, $I_B = 1.0$ mA
			−0.15	V	$I_C = 30$ mA, $I_B = 3.0$ mA
			−0.23	V	$I_C = 100$ mA, $I_B = 10$ mA
			−0.50	V	$I_C = 300$ mA, $I_B = 30$ mA
V_{BE}	Base to Emitter Voltage (Note 6)		−0.85	V	$I_C = 10$ mA, $I_B = 1.0$ mA
		-0.70	−0.96	V	$I_C = 30$ mA, $I_B = 3.0$ mA
			−1.20	V	$I_C = 100$ mA, $I_B = 10$ mA
			−1.60	V	$I_C = 300$ mA, $I_B = 30$ mA
C_{eb}	Emitter to Base Capacitance (Note 5)		25	pF	$I_C = 0$, $V_{EB} = -0.5$ V, f = 1.0 MHz
C_{cb}	Collector to Base Capacitance (Note 5)		6.0	pF	$I_E = 0$, $V_{CB} = -10$ V, f = 1.0 MHz
$\|h_{fe}\|$	Magnitude of Small Signal Current Gain	4.5			$V_{CE} = -10$ V, $I_C = 30$ mA, f = 100 MHz
τ_s	Charge Storage Time Constant (see test circuit no. 384.)		35	ns	$I_C = 10$ mA, $I_{B1} = I_{B2} = 10$ mA
t_{on}	Turn On Time (see test circuit no. 470)		20	ns	$I_C = 300$ mA, $I_{B1} = 30$ mA
t_{off}	Turn Off Time (see test circuit no. 470)		30	ns	$I_C = 300$ mA, $I_{B1} = I_{B2} = 30$ mA

NOTES:

1. These ratings are limiting values above which the serviceability of any individual semiconductor device may be impaired.
2. These are steady state limits. The factory should be consulted on applications involving pulsed or low duty cycle operations.
3. These ratings give a maximum junction temperature of 200°C, and junction to ambient thermal resistance of 515°C/W (derating factor of 1.94 mW/°C), junction to case thermal resistance of 175°C/W (derating factor of 5.7 mW/°C).
4. Rating refers to a high current point where collector to emitter voltage is lowest.
5. C_{eb} and C_{cb} measurements employ a three terminal capacitance bridge incorporating a guard circuit. The terminal, for which the dc bias current is specified as zero, shall be connected to the guard terminal of the bridge. The case also shall be guarded.
6. Pulse Conditions: length = 300 μs, duty cycle = 1.0%.
7. Applicable 10 μA to 100 mA pulse width = 10 μs, duty cycle = 2.0%.