



NEG

NEW ENGLAND SEMICONDUCTOR

2N3583
2N3584*
2N3585*
2N4240

*also available as
 JAN, JANTX,
 JANTXV

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

CHARACTERISTIC	SYMBOL	TEST CONDITIONS							LIMITS								UNITS
		DC COLLECTOR VOLTAGE-V		DC EMITTER OR BASE VOLTAGE-V		DC CURRENT mA			TYPE 2N3583		TYPE 2N3584		TYPE 2N3585		TYPE 2N4240		
		V _{CB}	V _{CE}	V _{EB}	V _{BE}	I _C	I _E	I _B	MIN.	MAX.	MIN.	MAX.	MIN.	MAX.	MIN.	MAX.	
Collector-Cutoff Current	I _{CEO}	150						0	—	10	—	5	—	5	—	5	mA
Collector-Cutoff Current	I _{CEX}	225			-1.5				—	1.0	—	—	—	—	—	—	mA
		340			-1.5				—	—	—	1.0	—	—	—	—	mA
		450			-1.5				—	—	—	—	1.0	—	2.0	—	mA
At T _C = 150°C	I _{CEX}	225			-1.5				—	3	—	—	—	—	—	—	mA
		300			-1.5				—	—	—	3	—	3	—	5.0	mA
Emitter-Cutoff Current	I _{EBO}			5				0	—	5.0	—	0.5	—	0.5	—	0.5	mA
DC Forward Current Transfer Ratio	h _{FE}	2				750			—	—	—	—	—	—	10	100	
		2				1 A			—	—	8	80	8	80	—	—	
		10				100			40	—	40	—	40	—	40	—	
		10				500			40	200	—	—	—	—	—	—	
		10				750			—	—	—	—	—	—	30	150	
		10				1 A			10	—	25	100	25	100	—	—	
Collector-to-Emitter Sustaining Voltage																	
With base open	V _{CE0(sus)}					200		0	175*	—	250*	—	300*	—	300*	—	V
With external base-to-emitter resistance (R _{BE}) = 50Ω	V _{CEB(sus)}					200			250*	—	300*	—	400*	—	400*	—	V
Base-to-Emitter Saturation Voltage	V _{BE(sat)}					750		75	—	—	—	—	—	—	—	1.8	V
						1 A		100	—	1.4	—	1.4	—	1.4	—	—	V
Collector-to-Emitter Saturation Voltage	V _{CE(sat)}					750		75	—	—	—	—	—	—	—	1.0	V
						1 A		125	—	5	—	0.75	—	0.75	—	—	V
Small-Signal Forward Current Transfer Ratio f = 5 MHz	h _{fe}		10			200			3	—	3	—	3	—	3	—	
f = 1 kHz		30				100			25	350	—	—	—	—	—	—	
Magnitude of Common-Emitter, Small-Signal, Short-Circuit, Forward Current Transfer Ratio f = 5 MHz	h _{fe}		10			200			2	—	2	—	2	—	3	—	
Output Capacitance (f = 1 MHz)	C _{obo}	10						0	—	120	—	120	—	120	—	120	pF
Second-Breakdown Collector Current with base forward-biased**	I _{S/b} ^Δ		100						350	—	350	—	350	—	350	—	mA
Second-Breakdown Energy with base reverse-biased R _{BE} = 20Ω, L = 100 μH	ES/b [†]				-4				50	—	200	—	200	—	50	—	μJ
Saturated Switching Time: Rise Time	t _r	(V _{CC}) 200				1 A 750		100 75	— —	— —	3 —	— —	3 —	— —	— —	0.5	
Storage Time	t _s	(V _{CC}) 200				1 A 750		100 75	— —	— —	4 —	— —	4 —	— —	— —	6	μs
Fall Time	t _f	(V _{CC}) 200				750 1 A		75 100	— —	— —	— 3	— —	— 3	— —	— —	3	
Thermal Resistance: Junction-to-Case	R _{θJC}								51(Max.) 2N3583	—	5	—	5	—	5	—	°C/W
Junction-to-Ambient	R _{θJA}								70 (Max.) 2N3583	—	70	—	70	—	70	—	°C/W

* In accordance with JEDEC registration data format JS-6 RDF-2 (2N3583), JS-6 RDF-1 (2N3584, 2N3585, 2N4240)

* CAUTION: The sustaining voltages $V_{CE0(sus)}$ and $V_{CEB(sus)}$ MUST NOT be measured on a curve tracer. These sustaining voltages should be measured by means of the test circuit shown in Fig. 1.

$\Delta I_{S/b}$ is defined as the current at which second breakdown occurs at a specified collector voltage.

** Specified value of $I_{S/b}$ for given value of V_{CE} as base voltage is increased from zero in a positive direction.

$\dagger ES/b$ is defined as the energy at which second breakdown occurs under specified reverse bias conditions. $ES/b = 1/2 LI^2$, where L is a series load or leakage inductance and I is the peak collector current.

NEW ENGLAND SEMICONDUCTOR

6 Lake Street Lawrence, MA 01841
 1-800-446-1158 / (978) 794-1666 / FAX: (978) 689-0803

T4-4.8-860-328 REV: --