

Electrical Characteristics @ $T_A = 25^\circ\text{C}$ unless otherwise specified

Characteristic	Symbol	Min	Max	Unit	Test Condition
OFF CHARACTERISTICS (Note 4)					
Collector-Base Breakdown Voltage	$V_{(BR)CBO}$	-40	—	V	$I_C = -10\mu\text{A}$, $I_E = 0$
Collector-Emitter Breakdown Voltage	$V_{(BR)CEO}$	-40	—	V	$I_C = -1.0\text{mA}$, $I_B = 0$
Emitter-Base Breakdown Voltage	$V_{(BR)EBO}$	-5.0	—	V	$I_E = -10\mu\text{A}$, $I_C = 0$
Collector Cutoff Current	I_{CEX}	—	-50	nA	$V_{CE} = -30\text{V}$, $V_{EB(OFF)} = -3.0\text{V}$
	I_{CBO}	—	-50	nA	$V_{CB} = -30\text{V}$, $I_E = 0$
Base Cutoff Current	I_{BL}	—	-50	nA	$V_{CE} = -30\text{V}$, $V_{EB(OFF)} = -3.0\text{V}$
ON CHARACTERISTICS (Note 4)					
DC Current Gain	h_{FE}	60 80 100 60 30	— — 300 — —	—	$I_C = -100\mu\text{A}$, $V_{CE} = -1.0\text{V}$ $I_C = -1.0\text{mA}$, $V_{CE} = -1.0\text{V}$ $I_C = -10\text{mA}$, $V_{CE} = -1.0\text{V}$ $I_C = -50\text{mA}$, $V_{CE} = -1.0\text{V}$ $I_C = -100\text{mA}$, $V_{CE} = -1.0\text{V}$
Collector-Emitter Saturation Voltage	$V_{CE(SAT)}$	—	-0.25 -0.40	V	$I_C = -10\text{mA}$, $I_B = -1.0\text{mA}$ $I_C = -50\text{mA}$, $I_B = -5.0\text{mA}$
Base-Emitter Saturation Voltage	$V_{BE(SAT)}$	-0.65 —	-0.85 -0.95	V	$I_C = -10\text{mA}$, $I_B = -1.0\text{mA}$ $I_C = -50\text{mA}$, $I_B = -5.0\text{mA}$
SMALL SIGNAL CHARACTERISTICS					
Output Capacitance	C_{obo}	—	4.5	pF	$V_{CB} = -5.0\text{V}$, $f = 1.0\text{MHz}$, $I_E = 0$
Input Capacitance	C_{ibo}	—	10	pF	$V_{EB} = -0.5\text{V}$, $f = 1.0\text{MHz}$, $I_C = 0$
Input Impedance	h_{ie}	2.0	12	$k\Omega$	$V_{CE} = -10\text{V}$, $I_C = -1.0\text{mA}$, $f = 1.0\text{kHz}$
Voltage Feedback Ratio	h_{re}	0.1	10	$\times 10^{-4}$	
Small Signal Current Gain	h_{fe}	100	400	—	
Output Admittance	h_{oe}	3.0	60	μS	
Current Gain-Bandwidth Product	f_T	250	—	MHz	$V_{CE} = -20\text{V}$, $I_C = -10\text{mA}$, $f = 100\text{MHz}$
Noise Figure	NF	—	4.0	dB	$V_{CE} = -5.0\text{V}$, $I_C = -100\mu\text{A}$, $R_S = 1.0k\Omega$, $f = 1.0\text{kHz}$
SWITCHING CHARACTERISTICS					
Delay Time	t_d	—	35	ns	$V_{CC} = -3.0\text{V}$, $I_C = -10\text{mA}$,
Rise Time	t_r	—	35	ns	$V_{BE(off)} = 0.5\text{V}$, $I_{B1} = -1.0\text{mA}$
Storage Time	t_s	—	225	ns	$V_{CC} = -3.0\text{V}$, $I_C = -10\text{mA}$,
Fall Time	t_f	—	75	ns	$I_{B1} = I_{B2} = -1.0\text{mA}$

Notes: 4. Measured under pulsed condition. Pulse width = 300 μs . Duty cycle $\leq 2\%$.

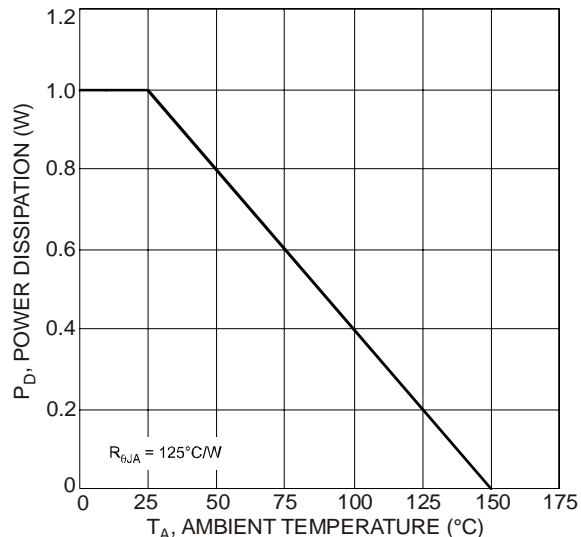


Fig. 1 Power Dissipation vs. Ambient Temperature (Note 3)

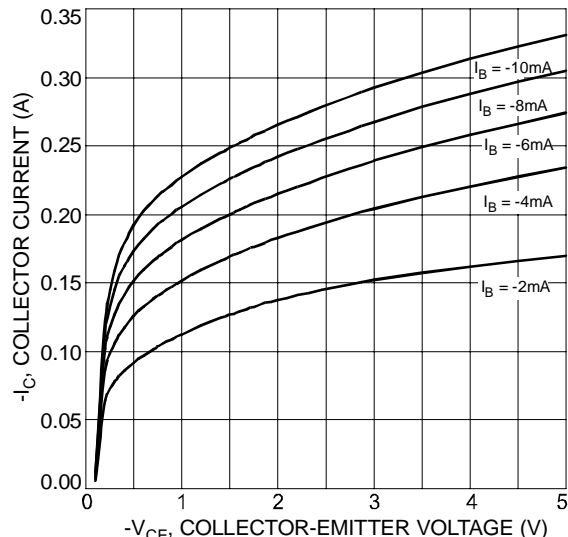


Fig. 2 Typical Collector Current vs. Collector-Emitter Voltage

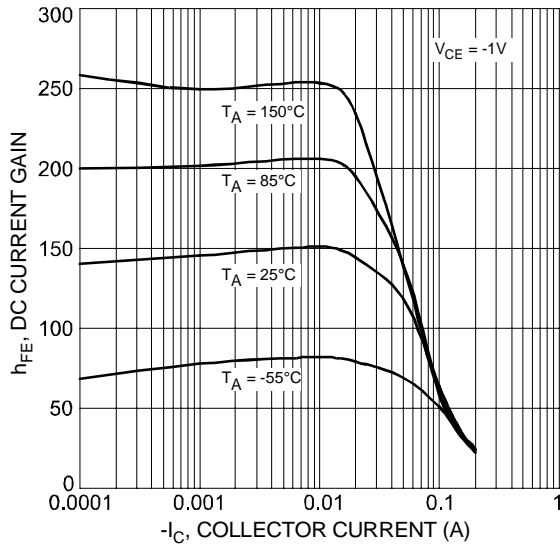


Fig. 3 Typical DC Current Gain vs. Collector Current

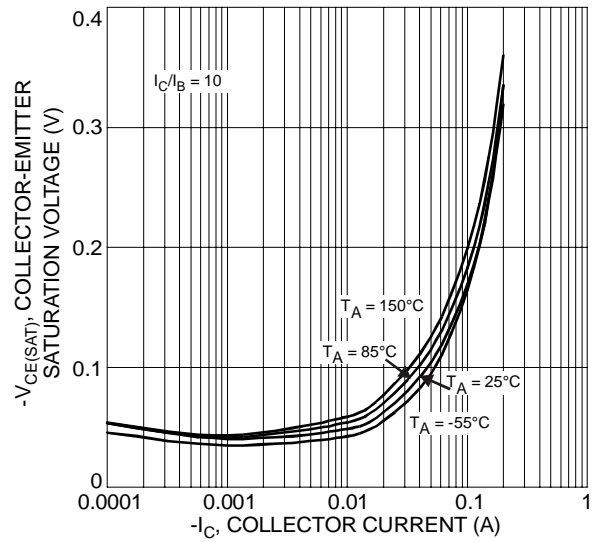


Fig. 4 Typical Collector-Emitter Saturation Voltage vs. Collector Current

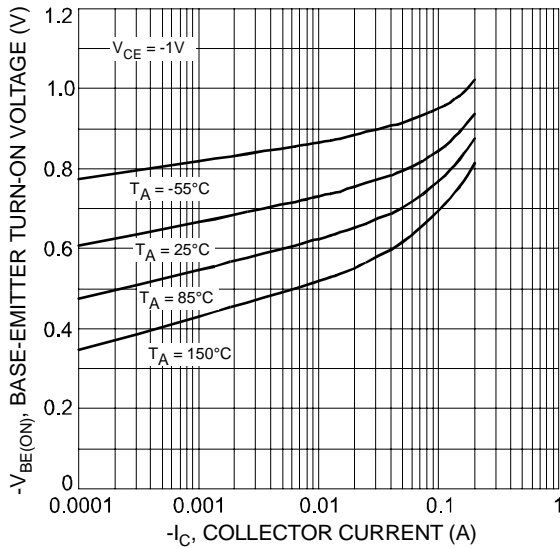


Fig. 5 Typical Base-Emitter Turn-On Voltage vs. Collector Current

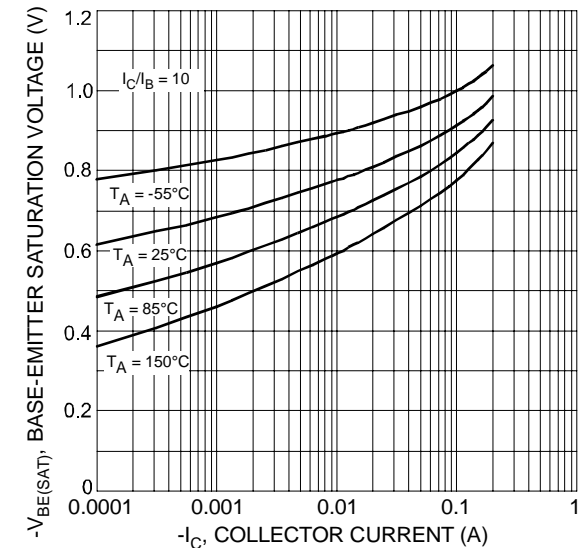


Fig. 6 Typical Base-Emitter Saturation Voltage vs. Collector Current

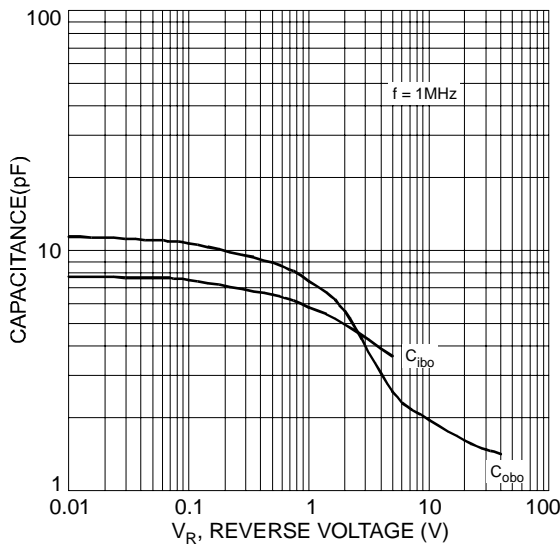


Fig. 7 Typical Capacitance Characteristics

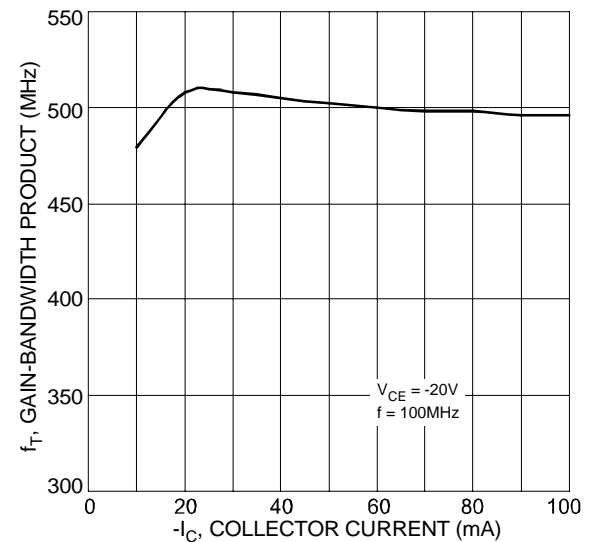


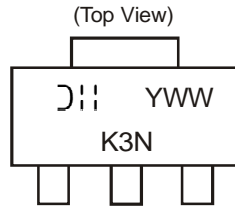
Fig. 8 Typical Gain-Bandwidth Product vs. Collector Current

Ordering Information (Note 5)

Device	Packaging	Shipping
DXT3906-13	SOT89-3L	2500/Tape & Reel

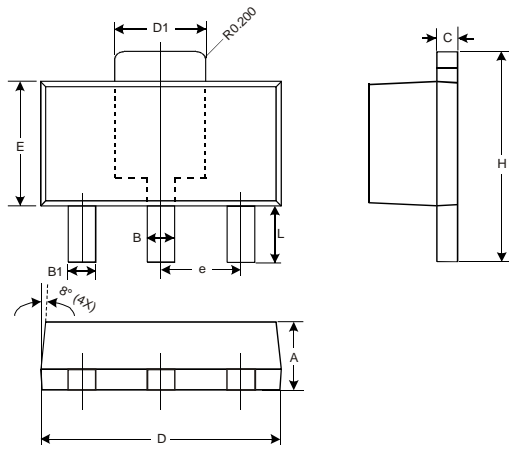
Notes: 5. For packaging details, go to our website at <http://www.diodes.com/ap02007.pdf>.

Marking Information



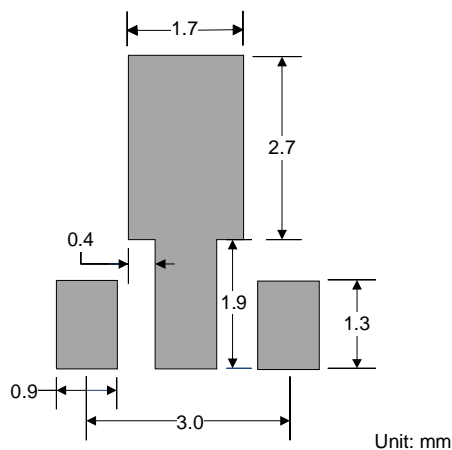
K3N = Product Type Marking Code
 ⌐⌐⌐ = Manufacturer's Marking Code
 YWW = Date Code Marking
 Y = Last digit of year ex: 7 = 2007
 WW = Week code 01 - 52

Package Outline Dimensions



SOT89-3L			
Dim	Min	Max	Typ
A	1.40	1.60	1.50
B	0.45	0.55	0.50
B1	0.37	0.47	0.42
C	0.35	0.43	0.38
D	4.40	4.60	4.50
D1	1.50	1.70	1.60
E	2.40	2.60	2.50
e	—	—	1.50
H	3.95	4.25	4.10
L	0.90	1.20	1.05
All Dimensions in mm			

Suggested Pad Layout



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