

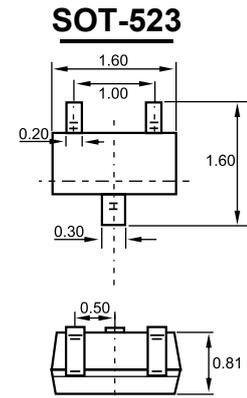


1. BASE
2. EMITTER
3. COLLECTOR

Features

- ✧ Epitaxial Planar Die Construction
- ✧ Complementary NPN Type Available
- ✧ Also Available in Lead Free Version

MARKING:3N



Dimensions in inches and (millimeters)

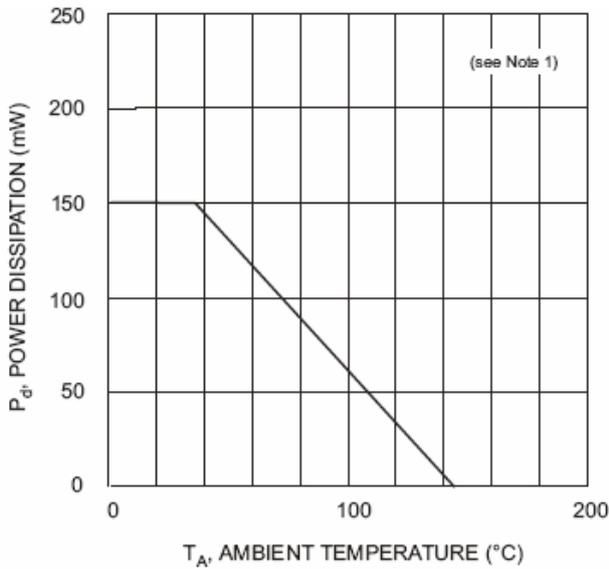
MAXIMUM RATINGS (T_A=25°C unless otherwise noted)

Symbol	Parameter	Value	Units
V _{CB0}	Collector-Base Voltage	-40	V
V _{CEO}	Collector-Emitter Voltage	-40	V
V _{EBO}	Emitter-Base Voltage	-5.0	V
I _C	Collector Current -Continuous	-200	mA
P _C	Collector Power Dissipation	150	mW
R _{θJA}	Thermal Resistance, Junction to Ambient	833	°C/W
T _J	Operating Temperature	150	°C
T _{stg}	Storage Temperature	-55-150	°C

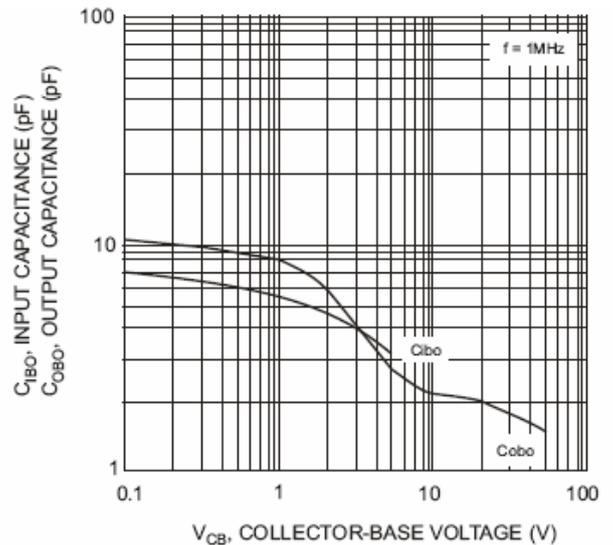
ELECTRICAL CHARACTERISTICS(T_{amb}=25°C unless otherwise specified)

Parameter	Symbol	Test conditions	MIN	TYP	MAX	UNIT
Collector-base breakdown voltage	V _{(BR)CBO}	I _C =-10μA, I _E =0	-40			V
Collector-emitter breakdown voltage	V _{(BR)CEO}	I _C =-1mA, I _B =0	-40			V
Emitter-base breakdown voltage	V _{(BR)EBO}	I _E =-10μA, I _C =0	-5			V
Collector cut-off current	I _{CBO}	V _{CB} =-30V, I _E =0			-0.1	μA
Emitter cut-off current	I _{EBO}	V _{EB} =-5V, I _C =0			-0.1	μA
DC current gain	h _{FE(1)}	V _{CE} =-1V, I _C =-0.1mA	60			
	h _{FE(2)}	V _{CE} =-1V, I _C =-1mA	80			
	h _{FE(3)}	V _{CE} =-1V, I _C =-10mA	100		300	
	h _{FE(4)}	V _{CE} =-1V, I _C =-50mA	60			
	h _{FE(5)}	V _{CE} =-1V, I _C =-100mA	30			
Collector-emitter saturation voltage	V _{CE(sat)1}	I _C =-10mA, I _B =-1mA			-0.25	V
	V _{CE(sat)2}	I _C =-50mA, I _B =-5mA			-0.4	V
Base-emitter saturation voltage	V _{BE(sat)1}	I _C =-10mA, I _B =-1mA	-0.65		-0.85	V
	V _{BE(sat)2}	I _C =-50mA, I _B =-5mA			-0.95	V
Transition frequency	f _T	V _{CE} =20V, I _C =-10mA, f=100MHz	250			MHz
Collector output capacitance	C _{obo}	V _{CB} =-5V, I _E =0, f=1MHz			4.5	pF
Input capacitance	C _{iob}	V _{EB} =-0.5V, I _E =0, f=1MHz			10	pF
Noise figure	NF	V _{CE} =-5V, I _C =0.1mA,			4	dB
Delay time	t _d	V _{CC} =-3V, V _{BE(OFF)} =-0.5V			35	nS
Rise time	t _r	I _C =-10mA, I _{B1} =-1mA			35	nS
Storage time	t _s	V _{CC} =-3V, I _C =-10mA			225	nS
Fall time	t _f	I _{B1} = I _{B2} =- 1mA			75	nS

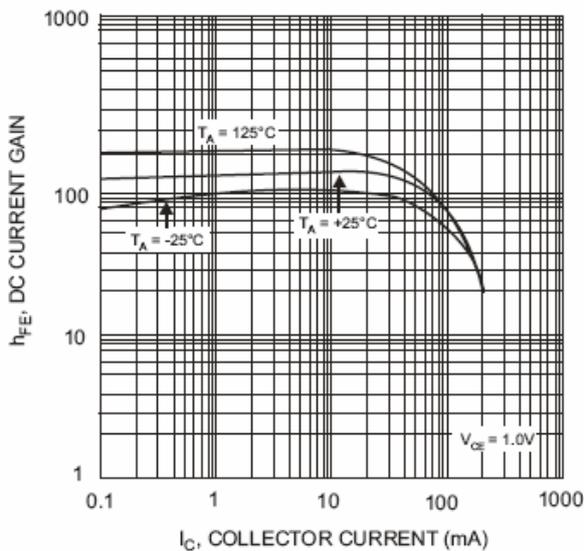
Typical Characteristics



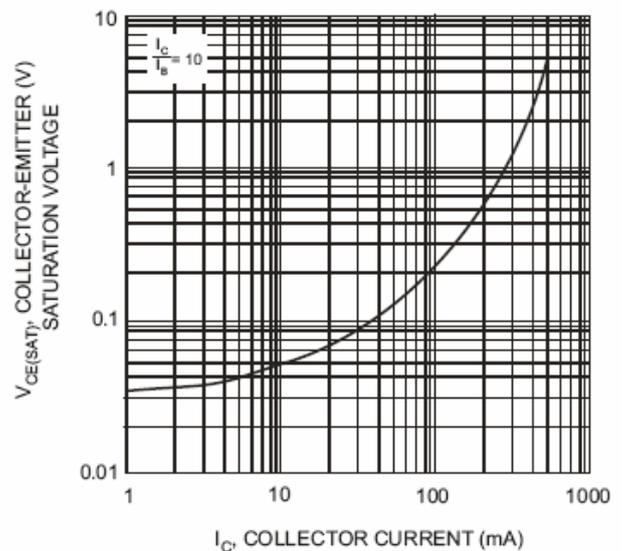
T_A , AMBIENT TEMPERATURE (°C)
Fig. 1, Power Derating Curve



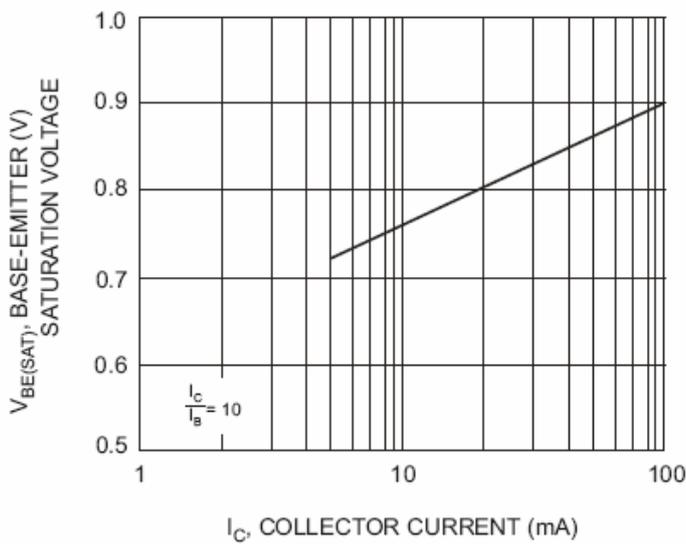
V_{CB} , COLLECTOR-BASE VOLTAGE (V)
Fig. 2, Input and Output Capacitance vs. Collector-Base Voltage



I_C , COLLECTOR CURRENT (mA)
Fig. 3, Typical DC Current Gain vs. Collector Current



I_C , COLLECTOR CURRENT (mA)
Fig. 4, Typical Collector-Emitter Saturation Voltage vs. Collector Current



I_C , COLLECTOR CURRENT (mA)
Fig. 5, Typical Base-Emitter Saturation Voltage vs. Collector Current