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NTE126

Germanium Mesa Transistor, PNP, for High-Speed Switching Applications

Maximum Ratings:

Collector–Emitter Voltage, V_{CE}	15Vdc
Collector–Base Voltage, V_{CB}	15Vdc
Emitter–Base Voltage, V_{EB}	2.5Vdc
Total Device Dissipation ($T_A = +25^\circ\text{C}$), P_D	150mW
Derate above 25°C	2.0mW/ $^\circ\text{C}$
Total Device Dissipation ($T_C = +25^\circ\text{C}$), P_D	300mW
Derate above 25°C	4.0mW/ $^\circ\text{C}$
Operating Junction Temperature Range, T_J	-65° to $+100^\circ\text{C}$
Storage Junction Temperature Range, T_{stg}	-65° to $+100^\circ\text{C}$

Electrical Characteristics: ($T_A = +25^\circ\text{C}$ unless otherwise specified)

Parameter	Symbol	Min	Max	Unit
Collector–Base Breakdown Voltage ($I_C = 100\mu\text{Adc}$, $I_E = 0$)	BV_{CBO}	15	–	Vdc
Emitter–Base Breakdown Voltage ($I_E = 100\mu\text{Adc}$, $I_C = 0$)	BV_{EBO}	2.5	–	Vdc
Collector–Latch–Up Voltage ($V_{CC} = 11.5 \text{ Vdc}$)	LV_{CEX}	11.5	–	Vdc
Collector–Emitter Cutoff Current ($V_{CE} = 15\text{Vdc}$)	I_{CES}	–	100	μAdc
Collector–Base Cutoff Current ($V_{CB} = 6\text{Vdc}$, $I_E = 0$)	I_{CBO}	–	3.0	μAdc
DC Current Gain ($I_C = 10\text{mAdc}$, $V_{CE} = 0.3\text{Vdc}$) ($I_C = 50\text{mAdc}$, $V_{CE} = 1\text{Vdc}$) ($I_C = 100\text{mAdc}$, $V_{CE} = 1\text{Vdc}$)	h_{FE}	40 40 40	– – –	–
Collector–Emitter Saturation Voltage ($I_C = 10\text{mAdc}$, $I_B = 1\text{mAdc}$) ($I_C = 50\text{mAdc}$, $I_B = 5\text{mAdc}$) ($I_C = 100\text{mAdc}$, $I_B = 10\text{mAdc}$)	$V_{CE(sat)}$	– – –	0.18 0.35 0.60	Vdc

Electrical Characteristics (Cont'd): ($T_A = 25^\circ\text{C}$)

Parameter	Symbol	Min	Max	Unit
Base–Emitter Saturation Voltage ($I_C = 10\text{mA dc}$, $I_B = 1\text{mA dc}$) ($I_C = 50\text{mA dc}$, $I_B = 5\text{mA dc}$) ($I_C = 100\text{mA dc}$, $I_B = 10\text{mA dc}$)	$V_{BE(\text{sat})}$	0.30 0.40 0.40	0.50 0.75 1.00	Vdc
Current–Gain–Bandwidth Product ($I_E = 20\text{mA dc}$, $V_{CB} = 1.0\text{Vdc}$, $f = 100\text{MHz}$)	f_T	300	–	MHz
Output Capacitance ($V_{CB} = 10\text{Vdc}$, $I_E = 0$, $f = 1\text{MHz}$)	C_{ob}	–	4.0	pF
Emitter Transition Capacitance ($V_{EB} = 1\text{Vdc}$)	C_{Te}	–	3.5	pF
Turn–On Time ($I_C = 10\text{mA dc}$, $I_{B1} = 5\text{mA dc}$, $V_{BE(\text{off})} = 1.25\text{Vdc}$) ($I_C = 100\text{mA dc}$, $I_{B1} = 5\text{mA dc}$, $V_{BE(\text{off})} = 1.25\text{Vdc}$)	t_{on}	– –	50 50	ns
Turn–Off Time ($I_C = 10\text{mA dc}$, $I_{B1} = 1\text{mA dc}$, $I_{B2} = 0.25\text{mA dc}$) ($I_C = 100\text{mA dc}$, $I_{B1} = 5\text{mA dc}$, $I_{B2} = 1.25\text{mA dc}$)	t_{off}	– –	85 85	ns
Total Control Charge ($I_C = 10\text{mA dc}$, $I_B = 1\text{mA dc}$) ($I_C = 100\text{mA dc}$, $I_B = 5\text{mA dc}$)	Q_T	– –	80 125	pC

