

Electrical Characteristics

$T_{\rm C} = 25$ U unless otherwise specified	$T_{\rm C} =$	25°C	unless	otherwise	s	pecified
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OFF Characteristics	Symbol	Min	Max	Unit
Collector-Base Breakdown Voltage $I_{C} = 10 \ \mu A$	V _{(BR)CBO}	175		V
Collector-Emitter Breakdown Voltage $I_{C} = 10 \text{ mA}$	V _{(BR)CEO}	175		V
Emitter-Base Breakdown Voltage $I_E = 10 \ \mu$ A, pulsed	V _{(BR)EBO}	5.0		V
Collector-Base Cutoff Current				
V _{CB} = 100 V	I _{CBO1}		100	nA
$V_{CB} = -100 \text{ V}, \text{ T}_{A} = +150^{\circ}\text{C}$	I _{CBO2}		100	μA
Emitter-Base Cutoff Current $V_{EB} = 3 V$	I _{EBO}		50	nA
Collector-Emitter Cutoff Current $V_{CE} = 100 V$	I _{CEO}		10	μA

ON Characteristics	Symbol	Min	Max	Unit
Forward Current Transfer Ratio				
$I_{C} = 0.1 \text{ mA}, V_{CE} = 10 \text{ V} \text{ (pulse test)}$	h _{FE1}	55		
I_{C} = 1.0 mA, V_{CE} = 1.0 V (pulse test)	h _{FE2}	90		
I_{C} = 10 mA, V_{CE} = 10 V (pulse test)	h _{FE3}	100		
$I_C = 50 \text{ mA}, V_{CE} = 10 \text{ V} \text{ (pulse test)}$	h _{FE4}	100	300	
$I_C = 150 \text{ mA}, V_{CE} = 10 \text{ V} \text{ (pulse test)}$	h _{FE5}	60		
I_{C} = 50 mA, V_{CE} = 10 V (pulsed), T_{A} = -55°C	h _{FE6}	50		
Collector-Emitter Saturation Voltage				
$I_{C} = 10 \text{ mA}, I_{B} = 1 \text{ mA}$ (pulse test)	V _{CE(sat)1}		0.3	V dc
$I_{C} = 50 \text{ mA}, I_{B} = 5 \text{ mA}$ (pulse test)	V _{CE(sat)2}		0.6	V dc
Base-Emitter Saturation Voltage Non Saturated				
$I_{\rm C}$ = 10 mA, $I_{\rm B}$ = 1 mA (pulse test)	V _{BE(sat)1}		0.8	V dc
$I_{C} = 50 \text{ mA}, I_{B} = 5 \text{ mA}$ (pulse test)	V _{BE(sat)2}	0.65	0.9	V dc

Switching Characteristics	Symbol	Min	Max	Unit
Pulse Delay Time	ta		100	ns
Per Figure 3 of MIL-S-19500/357	-u		100	
Pulse Rise Time	+		100	ne
$I_{C} = 500 \text{ mA}, I_{B1} = 50 \text{ mA}, V_{EB} = 2 \text{ V}$	۲		100	10
Pulse Storage Time	+		500	20
$I_{\rm C} = 500 \text{ mA}, I_{\rm B1} = I_{\rm B2} = 50 \text{ mA}$	۲ _S		500	115
Pulse Fall Time	+		150	20
$I_{\rm C} = 500 \text{ mA}, I_{\rm B1} = I_{\rm B2} = 50 \text{ mA}$	Ч		150	115
t off	+		600	20
$I_{\rm C} = 500$ mA, $I_{\rm B1} = I_{\rm B2} = 50$ mA	Loff		000	ns





Small Signal Characteristics	Symbol	Min	Max	Unit
Magnitude of Short-Circuit Forward Current Transfer Ratio $V_{CE} = 30 \text{ V}, I_C = 30 \text{ mA}, f = 100 \text{ MHz}$	h _{FE}	2.0	8.5	
Magnitude of Short-Circuit Forward Current Transfer Ratio $V_{CE} = 10 \text{ V}, I_C = 10 \text{ mA}, f = 1 \text{ kHz}$	h _{FE}	80	320	
Short-Circuit Input Impedance $V_{CE} = 10 \text{ V}, I_C = 10 \text{ mA}, f = 1 \text{ kHz}$	h _{IE}	200	1200	ohms
$\begin{array}{l} \textit{Open-Circuit, Reverse Voltage Transfer Ratio} \\ \textit{V}_{CE} = 10 \; \textit{V}, \; \textit{I}_{C} = 10 \; \textit{mA}, \; \textit{f} = 1 \; \textit{kHz} \end{array}$	h _{RE}		3x10 ⁻⁴	
Open Circuit Output Admittance $V_{CE} = 10 \text{ V}, I_C = 10 \text{ mA}, f = 1 \text{ kHz}$	hoe		200	μS
$\begin{array}{l} \textit{Open Circuit Output Capacitance} \\ \textit{V}_{CB} = 20 \text{ V}, \text{ I}_{E} = 0, \ 100 \text{ kHz} < f < 1 \text{ MHz} \end{array}$	C _{OBO}		10	pF
Input Capacitance, Output Open Circuited $V_{EB} = 1 \text{ V}, I_C = 0, 100 \text{ kHz} < f < 1 \text{ MHz}$	C _{IBO}		75	pF
Noise Figure $V_{CE} = 10 \text{ V}, I_C = 0.5 \text{ mA}, R_g = 1 \text{ kohm}$				
f = 100 Hz f = 1 kHz	NF		5 3	dB dB
f = 10 kHz			3	dB