

RADIATION HARDENED PNP SILICON SWITCHING TRANSISTOR *Qualified per MIL-PRF-19500/291*

DEVICES

2N2906A	2N2907A
2N2906AL	2N2907AL
2N2906AUA	2N2907AUA
2N2906AUB	2N2907AUB
2N2906AUBC	2N2907AUBC

LEVELS

JANSM – 3K Rads (Si)
JANSD – 10K Rads (Si)
JANSP – 30K Rads (Si)
JANSL – 50K Rads (Si)
JANSR – 100K Rads (Si)

ABSOLUTE MAXIMUM RATINGS ($T_C = +25^\circ\text{C}$ unless otherwise noted)

Parameters / Test Conditions	Symbol	Value	Unit
Collector-Emitter Voltage	V_{CEO}	60	Vdc
Collector-Base Voltage	V_{CBO}	60	Vdc
Emitter-Base Voltage	V_{EBO}	5.0	Vdc
Collector Current	I_C	600	mAdc
Total Power Dissipation @ $T_A = +25^\circ\text{C}$	$P_T^{(1)}$	0.5	W
Operating & Storage Junction Temperature Range	T_{op}, T_{stg}	-65 to +200	$^\circ\text{C}$

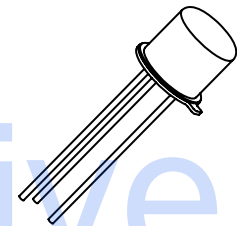
THERMAL CHARACTERISTICS

Parameters / Test Conditions	Symbol	Max.	Unit
Thermal Resistance, Junction-to-Ambient	$R_{\theta JA}^{(1)}$	325	$^\circ\text{C/W}$

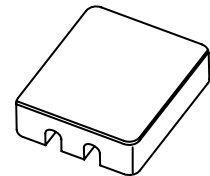
1. See MIL-PRF-19500/291 for derating curves.

ELECTRICAL CHARACTERISTICS ($T_A = +25^\circ\text{C}$, unless otherwise noted)

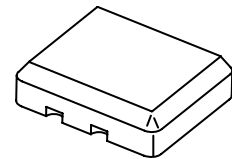
Parameters / Test Conditions	Symbol	Min.	Max.	Unit
OFF CHARACTERISTICS				
Collector-Emitter Breakdown Voltage $I_C = 10\text{mAdc}$	$V_{(BR)CEO}$	60		Vdc
Collector-Base Cutoff Current $V_{CB} = 60\text{Vdc}$ $V_{CB} = 50\text{Vdc}$	I_{CBO}		10 10	μAdc ηAdc
Emitter-Base Cutoff Current $V_{EB} = 5.0\text{Vdc}$ $V_{EB} = 4.0\text{Vdc}$	I_{EBO}		10 50	μAdc ηAdc
Collector-Emitter Cutoff Current $V_{CE} = 50\text{Vdc}$	I_{CES}		50	ηAdc



TO-18 (TO-206AA)
 2N2906A, 2N2907A



4 PIN
 2N2906AUA, 2N2907AUA



3 PIN
 2N2906AUB, 2N2907AUB
 2N2906AUBC, 2N2907AUBC
 (UBC = Ceramic Lid Version)

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ELECTRICAL CHARACTERISTICS ($T_A = +25^\circ\text{C}$, unless otherwise noted)

Parameters / Test Conditions	Symbol	Min.	Max.	Unit
ON CHARACTERISTICS ⁽²⁾				
Forward-Current Transfer Ratio $I_C = 0.1\text{mA}$, $V_{CE} = 10\text{Vdc}$		40 75		
	2N2906A, L, UA, UB, UBC 2N2907A, L, UA, UB, UBC			
$I_C = 1.0\text{mA}$, $V_{CE} = 10\text{Vdc}$		40 100	175 450	
	2N2906A, L, UA, UB, UBC 2N2907A, L, UA, UB, UBC			
$I_C = 10\text{mA}$, $V_{CE} = 10\text{Vdc}$	h_{FE}	40 100		
	2N2906A, L, UA, UB, UBC 2N2907A, L, UA, UB, UBC			
$I_C = 150\text{mA}$, $V_{CE} = 10\text{Vdc}$		40 100	120 300	
	2N2906A, L, UA, UB, UBC 2N2907A, L, UA, UB, UBC			
$I_C = 500\text{mA}$, $V_{CE} = 10\text{Vdc}$		40 50		
	2N2906A, L, UA, UB, UBC 2N2907A, L, UA, UB, UBC			
Collector-Emitter Saturation Voltage $I_C = 150\text{mA}$, $I_B = 15\text{mA}$ $I_C = 500\text{mA}$, $I_B = 50\text{mA}$	$V_{CE(sat)}$		0.4 1.6	Vdc
Base-Emitter Voltage $I_C = 150\text{mA}$, $I_B = 15\text{mA}$ $I_C = 500\text{mA}$, $I_B = 50\text{mA}$	$V_{BE(sat)}$	0.6	1.3 2.6	Vdc

DYNAMIC CHARACTERISTICS

Parameters / Test Conditions	Symbol	Min.	Max.	Unit
Small-Signal Short-Circuit Forward Current Transfer Ratio $I_C = 1.0\text{mA}$, $V_{CE} = 10\text{Vdc}$, $f = 1.0\text{kHz}$	h_{fe}	40 100		
	2N2906A, L, UA, UB, UBC 2N2907A, L, UA, UB, UBC			
Magnitude of Small-Signal Short-Circuit Forward Current Transfer Ratio $I_C = 20\text{mA}$, $V_{CE} = 20\text{Vdc}$, $f = 100\text{MHz}$	$ h_{fe} $	2.0		
Output Capacitance $V_{CB} = 10\text{Vdc}$, $I_E = 0$, $100\text{kHz} \leq f \leq 1.0\text{MHz}$	C_{obo}		8.0	pF
Input Capacitance $V_{EB} = 2.0\text{Vdc}$, $I_C = 0$, $100\text{kHz} \leq f \leq 1.0\text{MHz}$	C_{ibo}		30	pF

SWITCHING CHARACTERISTICS

Parameters / Test Conditions	Symbol	Min.	Max.	Unit
Turn-On Time See MIL-PRF-19500/291	t_{on}		45	ns
Turn-Off Time See MIL-PRF-19500/291	t_{off}		300	ns

(2) Pulse Test: Pulse Width = 300 μ s, Duty Cycle \leq 2.0%.