6 Lake Street, Lawrence, MA 01841
1-800-446-1158 / (978) 620-2600 / Fax: (978) 689-0803
Website: http: //www.microsemi.com

TECHNICAL DATA SHEET

NPN MEDIUM POWER SILICON TRANSISTOR

Qualified per MIL-PRF-19500/349

DEVICES

2N3506 **2N3507**
2N3506A **2N3507A**
2N3506L **2N3507L**
2N3506AL **2N3507AL**

LEVELS

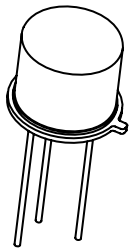
JAN
JANTX
JANTXV

ABSOLUTE MAXIMUM RATINGS (T_C = +25°C unless otherwise noted)

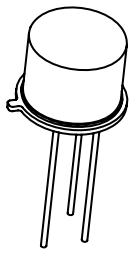
Parameters / Test Conditions	Symbol	2N3506	2N3507	Unit
Collector-Emitter Voltage	V_{CEO}	40	50	Vdc
Collector-Base Voltage	V_{CBO}	60	80	Vdc
Emitter-Base Voltage	V_{EBO}	5.0		Vdc
Collector Current	I_C	3.0		Adc
Total Power Dissipation @ T_A = 25°C (1) @ T_C = 25°C (2)	P_T	1.0 5.0		W
Operating & Storage Temperature Range	T_{op}, T_{stg}	-65 to +200		°C

Note:

1) Derate linearly 5.71 mW/°C for T_A > +25°C
2) Derate linearly 55.5 mW/°C for T_C > +25°C



TO-5 (L-Versions)



TO-39 (TO-205-AD)

ELECTRICAL CHARACTERISTICS *(T_A = +25°C, unless otherwise noted)*

Parameters / Test Conditions		Symbol	Min.	Max.	Unit
OFF CHARACTERISTICS					
Collector-Emitter Breakdown Voltage I_C = 10mAdc	2N3506 2N3507	$V_{(BR)CEO}$	40 50		Vdc
Collector-Emitter Cutoff Current V_{CE} = 40Vdc V_{CE} = 60Vdc	2N3506 2N3507	I_{CEX}		1.0 1.0	µAdc
Collector-Base Breakdown Voltage I_C = 100µAdc		$V_{(BR)CBO}$	60 80		Vdc
Emitter-Base Breakdown Voltage I_E = 10µAdc		$V_{(BR)EBO}$	5		Vdc
ON CHARACTERISTICS (3)					
Forward-Current Transfer Ratio I_C = 500mAdc, V_{CE} = 1Vdc	2N3506 2N3507	h_{FE}	50 35	250 175	
Forward-Current Transfer Ratio I_C = 1.5Adc, V_{CE} = 2Vdc	2N3506 2N3507	h_{FE}	40 30	200 150	
Forward-Current Transfer Ratio I_C = 2.5Adc, V_{CE} = 3Vdc	2N3506 2N3507	h_{FE}	30 25		

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ELECTRICAL CHARACTERISTICS ***(T_A = +25°C, unless otherwise noted) (CONT.)***

Parameters / Test Conditions		Symbol	Min.	Max.	Unit
ON CHARACTERISTICS (3)					
Forward-Current Transfer Ratio I_C = 3.0Adc, V_{CE} = 5Vdc	2N3506 2N3507	h_{FE}	25 20		
Forward-Current Transfer Ratio I_C = 500mAdc, V_{CE} = 1.0Vdc	2N3506 2N3507	h_{FE}	25 17		
Forward-Current Transfer Ratio I_C = 500mAdc, V_{CE} = 2Vdc	2N3506A 2N3507A	h_{FE}	25 17		
Collector-Emitter Saturation Voltage I_C = 500mAdc, I_B = 50mAdc		$V_{CE(sat)}$		0.5	Vdc
Collector-Emitter Saturation Voltage I_C = 1.5Adc, I_B = 150mAdc		$V_{CE(sat)}$		1.0	Vdc
Collector-Emitter Saturation Voltage I_C = 2.5Adc, I_B = 250mAdc		$V_{CE(sat)}$		1.5	Vdc
Base-Emitter Saturation Voltage I_C = 500mAdc, I_B = 50mAdc		$V_{BE(sat)}$		1.0	Vdc
Base-Emitter Saturation Voltage I_C = 1.5Adc, I_B = 150mAdc		$V_{BE(sat)}$	0.8	1.3	Vdc
Base-Emitter Saturation Voltage I_C = 2.5Adc, I_B = 250mAdc		$V_{BE(sat)}$		2.0	Vdc

DYNAMIC CHARACTERISTICS

Parameters / Test Conditions	Symbol	Min.	Max.	Unit
Magnitude of Common Emitter Small-Signal Short-Circuit Forward Current Transfer Ratio I_C = 100mAdc, V_{CE} = 5Vdc, f = 20MHz	$\|h_{fe}\|$	3.0	15	
Output Capacitance V_{CB} = 10Vdc, I_E = 0, 100kHz ≤ f ≤ 1.0MHz	C_{obo}		40	pF
Input Capacitance V_{EB} = 3.0Vdc, I_C = 0, 100kHz ≤ f ≤ 1.0MHz	C_{ibo}		300	pF

SWITCHING CHARACTERISTICS (4)

Parameters / Test Conditions	Symbol	Min.	Max.	Unit
Delay Time I_C = 1.5Adc, I_{B1} = 150mAdc	t_d		15	ns
Rinse Time I_C = 1.5Adc, I_{B1} = 150mAdc	t_r		30	ns
Storage Time I_C = 1.5Adc, I_{B1} = I_{B2} = 150mAdc	t_s		55	ns
Fall Time I_C = 1.5Adc, I_{B1} = I_{B2} = 150mAdc	t_f		35	ns

(3) Pulse Test: Pulse Width = 300µs, Duty Cycle ≤ 2.0%.
(4) Consult MIL-PRF-19500/349 For Additional Information.