

PNP SWITCHING SILICON TRANSISTOR

Qualified per MIL-PRF-19500/350

Devices

2N3867 2N3868
2N3867S 2N3868S

Qualified Level

JAN
JANTX
JANTXV

MAXIMUM RATINGS

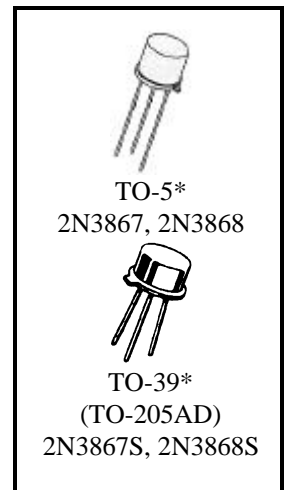
Ratings	Symbol	2N3867 2N3867S	2N3868 2N3868S	Unit
Collector-Emitter Voltage	V_{CEO}	40	60	Vdc
Collector-Base Voltage	V_{CBO}	40	60	Vdc
Emitter-Base Voltage	V_{EBO}		4.0	Vdc
Collector Current -- Continuous	I_C		3.0	Adc
Total Power Dissipation	@ $T_A = 25^\circ\text{C}^{(1)}$		1.0	W
	@ $T_C = 25^\circ\text{C}^{(2)}$		10	W
Operating & Storage Temperature Range	T_{OP}, T_{STG}	-55 to +200		$^\circ\text{C}$

THERMAL CHARACTERISTICS

Characteristics	Symbol	Max.	Unit
Thermal Resistance, Junction-to-Case	$R_{\theta JC}$	17.5	$^\circ\text{C}/\text{W}$

1) Derate linearly 5.71 mW/ $^\circ\text{C}$ for $T_A > +25^\circ\text{C}$

2) Derate linearly 57.1 mW/ $^\circ\text{C}$ for $T_C > +25^\circ\text{C}$



*See Appendix A for Package Outline

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

Characteristics	Symbol	Min.	Max.	Unit
Collector-Base Breakdown Voltage $I_C = 100 \mu\text{Adc}$	2N3867, S		40	Vdc
	2N3868, S		60	
Collector-Emitter Breakdown Voltage $I_C = 20 \text{mAdc}$	2N3867, S		40	Vdc
	2N3868, S		60	
Emitter-Base Breakdown Voltage $I_E = 100 \mu\text{Adc}$	$V_{(BR)EBO}$		4.0	Vdc
Collector-Emitter Cutoff Current $V_{EB} = 2.0 \text{Vdc}, V_{CE} = 40 \text{Vdc}$	2N3867, S		1.0	μAdc
	2N3868, S		1.0	
Collector-Base Cutoff Current $V_{CB} = 40 \text{Vdc}$	2N3867, S		100	μAdc
	2N3868, S		100	
Emitter-Base Cutoff Current $V_{EB} = 4 \text{Vdc}$	I_{EBO}		100	μAdc

2N3867, S; 2N3868, S JAN SERIES

ELECTRICAL CHARACTERISTICS (con't)

Characteristics	Symbol	Min.	Max.	Unit
ON CHARACTERISTICS ⁽³⁾				
Forward-Current Transfer Ratio I _C = 500 mAdc, V _{CE} = 1.0 Vdc 2N3867, S 2N3868, S I _C = 1.5 Adc, V _{CE} = 2.0 Vdc 2N3867, S 2N3868, S I _C = 2.5 Adc, V _{CE} = 3.0 Vdc 2N3867, S 2N3868, S I _C = 3.0 Adc, V _{CE} = 5.0 Vdc All Types	h _{FE}	50 35 40 30 25 20 20	200 150	
Collector-Emitter Saturation Voltage I _C = 500 mAdc, I _B = 50 mAdc I _C = 1.5 Adc, I _B = 150 mAdc I _C = 2.5 Adc, I _B = 250 mAdc	V _{CE(sat)}		0.5 0.75 1.5	Vdc
Base-Emitter Saturation Voltage I _C = 500 mAdc, I _B = 50 mAdc I _C = 1.5 Adc, I _B = 150 mAdc I _C = 2.5 Adc, I _B = 250 mAdc	V _{BE(sat)}	0.9	1.0 1.4 2.0	Vdc

DYNAMIC CHARACTERISTICS

Magnitude of Common Emitter Small-Signal Short Circuit Forward Current Transfer Ratio I _C = 100 mAdc, V _{CE} = 5.0 Vdc, f = 20 MHz	h _{fe}	3.0	12	
Output Capacitance V _{CB} = 10 Vdc, I _E = 0, 100 kHz ≤ f ≤ 1.0 MHz	C _{obo}		120	pF
Input Capacitance V _{EB} = 3.0 Vdc, I _C = 0, 100 kHz ≤ f ≤ 1.0 MHz	C _{ibo}		800	pF

SWITCHING CHARACTERISTICS

Delay Time V _{CC} = -30 Vdc, V _{EB} = 0,	t _d		35	ns
Rise Time I _C = 1.5 Adc, I _{B1} = 150 mAdc	t _r		65	ns
Storage Time V _{CC} = -30 Vdc, V _{EB} = 0,	t _s		500	ns
Fall Time I _C = 1.5Adc, I _{B1} = I _{B2} = 150 mAdc	t _f		100	ns
Turn-On Time V _{CC} = 30, I _C = 1.5 Adc, I _B = 150 mAdc	t _{on}		100	ns
Turn-Off Time V _{CC} = 30, I _C = 1.5 Adc, I _B = 150 mAdc	t _{off}		600	ns

SAFE OPERATING AREA

DC Tests T _C = 25°C, 1 Cycle, t = 1.0 s				
Test 1 V _{CE} = 3.33 Vdc, I _C = 3.0 Adc				
Test 2 V _{CE} = 40 Vdc, I _C = 160 mAdc 2N3867, S V _{CE} = 60 Vdc, I _C = 80 mAdc 2N3868, S				

(3) Pulse Test: Pulse Width = 300μs, Duty Cycle ≤ 2.0%.