

# **TECHNICAL DATA**

TO-39\* (TO-205AD) 2N3467, 2N3468

TO-5\*

2N3467L, 2N3468L

\*See appendix A for package outline

## PNP SILICON SWITCHING TRANSISTOR Qualified per MIL-PRF-19500/348

Devices		Qualified Level
2N3467 2N3467L	2N3468 2N3468L	JAN JANTX JANTXV

Ratings	Symbol	2N3467 2N3467L	2N3468 2N3468L	Unit
Collector-Emitter Voltage	V <sub>CEO</sub>	40	50	Vdc
Collector-Base Voltage	V <sub>CBO</sub>	40	50	Vdc
Emitter-Base Voltage	V <sub>EBO</sub>	5.0		Vdc
Collector Current	I <sub>C</sub>	1.0		Adc
Total Power Dissipation $@ T_A = +25^0 C^{(1)}$ $@ T_C = +25^0 C^{(2)}$	р	1	.0	W
@ $T_C = +25^0 C^{(2)}$	P <sub>T</sub>	5.0		W
Operating & Storage Junction Temperature Range	T <sub>op</sub> , T <sub>stg</sub>	-55 to +175		<sup>0</sup> C

1) Derate linearly 5.71 mW/ $^{0}$ C for T<sub>A</sub> > +25 $^{0}$ C

2) Derate linearly 28.6 mW/ $^{0}$ C for T<sub>C</sub> > +25 $^{0}$ C

#### **ELECTRICAL CHARACTERISTICS**

Characteristics		Symbol	Min.	Max.	Unit
OFF CHARACTERISTICS					
Collector-Emitter Breakdown Current					
$I_{\rm C} = 10 \text{ mAdc}$	2N3467, L	V <sub>(BR)CBO</sub>	40		Vdc
	2N3468, L		50		
Emitter-Base Breakdown Current		N			Vdc
$I_E = 10 \ \mu Adc$		V <sub>(BR)EBO</sub>	5.0		vuc
Collector-Emitter Breakdown Current					
$I_{\rm C} = 10 \text{ mAdc}$	2N3467, L	V <sub>(BR)CEO</sub>	40		Vdc
	2N3468, L		50		
Collector-Base Cutoff Current		т			m A da
$V_{CB} = 30 \text{ Vdc}$		I <sub>CBO</sub>		100	ηAdc
Collector-Emitter Cutoff Current		т		100	nAdc
$V_{EB} = 3.0 \text{ Vdc}, V_{CE} = 30$		I <sub>CEX</sub>		100	IIAde

### ELECTRICAL CHARACTERISTICS (con't)

$ \begin{array}{ c c c c c c c c c c c c c c c c c c c$		Characteristics		Symbol	Min.	Max.	Unit
$ \begin{array}{ c c c c c c c c c c c c c c c c c c c$	<b>ON CHARAC</b>	TERISTICS (3)					
$\begin{array}{ c c c c c c c c c c c c c c c c c c c$	Forward-Curren	nt Transfer Ratio					
$\begin{array}{c c c c c c c c c c c c c c c c c c c $	I <sub>C</sub> =150 mAde	c, $V_{CE} = 1.0$ Vdc	2N3467, L		40		
$ \begin{array}{c c c c c c c c c c c c c c c c c c c $			2N3468, L		-		
$\begin{array}{c c c c c c c c c c c c c c c c c c c $							
$\begin{array}{c c c c c c c c c c c c c c c c c c c $	$I_{\rm C} = 500 \text{ mAd}$	lc, $V_{CE} = 1.0 \text{ Vdc}$	,	h <sub>FE</sub>	40	120	
$\begin{array}{ c c c c c c c c c c c c c c c c c c c$			2N3468, L		25	75	
$\begin{array}{ c c c c c c c c c c c c c c c c c c c$	$L_{r} = 1.0 \text{ Ade}$	$V_{r-} = 5.0 V dc$	2N3467 I		10		
$\begin{array}{ c c c c c c c c c c c c c c c c c c c$	$I_{\rm C} = 1.0$ Ade,	$v_{CE} = 5.0$ v dc	,		-		
$\begin{array}{c c c c c c c c c c c c c c c c c c c $	Collector-Emitt	er Saturation Voltage	2113-100, L		23		
$\begin{array}{ c c c c c c c c c c c c c c c c c c c$		0		VCE(cost)		0.35	
$\begin{array}{c c c c c c c c c c c c c c c c c c c $				• CE(sat)			Vdc
$ \begin{array}{ c c c c c c c c c c c c c c c c c c c$						1.2	
$ \begin{array}{ c c c c c c c c c c c c c c c c c c c$							
$\begin{array}{ c c c c c c c c c c c c c c c c c c c$		÷				1.0	
$\begin{array}{c c c c c c c c c c c c c c c c c c c $	$I_C = 500 \text{ mAd}$			V <sub>BE(sat)</sub>	0.8	1.2	Vdc
$ \begin{array}{ c c c c c c c c } \hline Output Capacitance & & & C_{obo} & & 25 & pF \\ \hline V_{CB} = 10 \ Vdc, \ I_E = 0, \ 100 \ kHz \leq f \leq 1.0 \ MHz & & C_{obo} & & 175 & 500 \\ \hline Extrapolated Unity Gain Frequency & & & & f_t & 175 & 500 \\ \hline I_C = 50 \ mAdc, \ V_{CE} = 10 \ Vdc, \ f = 100 \ NHz & & 2N3467, \ L & & & & 175 & 500 \\ \hline 2N3468, \ L & & & & & 150 & 500 \\ \hline Input Capacitance & & & & & & \\ \hline V_{EB} = 0.5 \ Vdc, \ I_C = 0, \ 100 \ kHz \leq f \leq 1.0 \ MHz & & & C_{ibo} & & 100 & pF \\ \hline \textbf{SWITCHING CHARACTERISTICS} & & & & & \\ \hline Delay \ Time & \ I_C = 500 \ mAdc, \ I_{B1} = 50 \ mAdc, \ V_{EB} = 2 & \ t_{T} & & & 30 & ns \\ \hline Storage \ Time & \ I_C = 500 \ mAdc, \ I_{B1} = \ I_{B2} = 50 \ mAdc & & \ t_{S} & & & 600 & ns \\ \hline \end{array} $	$I_{\rm C} = 1.0$ Adc,	$I_{\rm B} = 100 \text{ mAdc}$				1.6	
$\begin{tabular}{ c c c c c c c c c c c c c c c c c c c$	DYNAMIC CI	HARACTERISTICS					
$ \begin{array}{c c c c c c c c c c c c c c c c c c c $	Output Capacita	ance		C		25	ъĘ
$ \begin{array}{c c c c c c c c c c c c c c c c c c c $	$V_{CB} = 10 V dc$	c, $I_E = 0$ , 100 kHz $\leq f \leq 1.0$ M	Hz	$C_{obo}$		23	рг
$\begin{array}{c c c c c c c c c c c c c c c c c c c $	<u>^</u>						
$\begin{tabular}{ c c c c c c c c c c c c c c c c c c c$	$I_C = 50 \text{ mAdc}, $	$V_{CE} = 10$ Vdc, f = 100NHz		ft			MHz
$\begin{tabular}{ c c c c c c c c c c c c c c c c c c c$				-1			
$\begin{tabular}{ c c c c c c c c c c c c c c c c c c c$			2N3468, L		150	500	
SWITCHING CHARACTERISTICS           Delay Time $I_C = 500 \text{ mAdc}, I_{B1} = 50 \text{ mAdc}, V_{EB} = 2$ $t_d$ 10         ns           Rise Time $I_C = 500 \text{ mAdc}, I_{B1} = 50 \text{ mAdc}, V_{EB} = 2$ $t_r$ 30         ns           Storage Time $I_C = 500 \text{ mAdc}, I_{B1} = I_{B2} = 50 \text{ mAdc}$ $t_s$ 60         ns			C <sub>ibo</sub>		100	pF	
$\begin{tabular}{ c c c c c c c c c c c c c c c c c c c$			ITIZ				
Rise Time $I_C = 500 \text{ mAdc}, I_{B1} = 50 \text{ mAdc}, V_{EB} = 2$ tr30nsStorage Time $I_C = 500 \text{ mAdc}, I_{B1} = I_{B2} = 50 \text{ mAdc}$ ts60ns			Add $V_{EP} = 2$	td		10	ns
Storage Time $I_C = 500 \text{ mAdc}, I_{B1} = I_{B2} = 50 \text{ mAdc}$ tt60ns			-				
	-						
	Fall Time			tf		30	ns

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