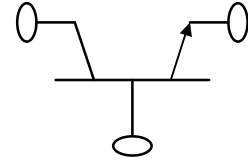


## DIE SPECIFICATION

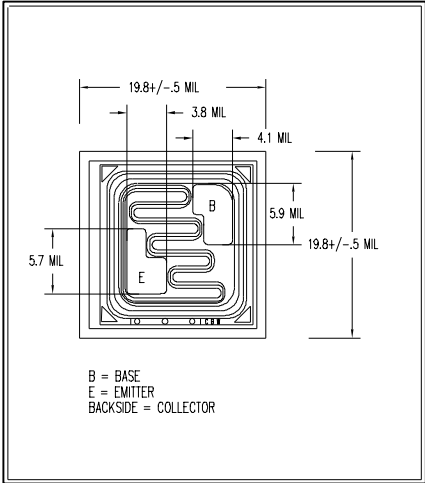
### SWITCHING TRANSISTOR NPN SILICON



#### FEATURES:

- ELECTRICAL PERFORMANCE I.A.W. MIL-PRF-19500/255
- AVAILABLE IN WAFER OR CHIP FORM FOR HYBRID APPLICATIONS
- GENERAL PURPOSE-HIGH SPEED SWITCHING APPLICATIONS
- LOW  $V_{CE(sat)}$ : .3V @  $I_C = 150 \text{ mAdc}$

**PHYSICAL DIMENSIONS**



**Absolute Maximum Ratings:**

Symbol	Parameter	Limit	Unit
$V_{ce}$	Collector-Emitter Voltage	50	Vdc
$V_{cb}$	Collector-Base Voltage	75	Vdc
$V_{eb}$	Emitter-Base Voltage	6.0	Vdc
$I_c$	Collector Current- Continuous	800	mAdc
$T_j, T_{stg}$	Operating Junction & Storage Temperature Range	-65 to +200	°C

**Packaging Options:**  
W: Wafer (100% probed)    U: Wafer (sample probed)  
D: Chip (Waffle Pack)      B: Chip (Vial)  
V: Chip (Waffle Pack, 100% visually inspected)    X: Other

**Processing Options:**  
Standard: Capable of JANTXV applications (No Suffix)  
Suffix C: Commercial  
Suffix S: Capable of S-Level equivalent applications

**Metallization Options:**  
Standard: Al Top                    / Au Backside (No Dash #)  
Dash 1: Al Top                    / TiPdAg Backside

**ORDERING INFORMATION:**  
PART #: 2N2222A\_\_ - \_\_  
First Suffix Letter: Packaging Option  
Second Suffix Letter: Processing Option  
Dash #: Metallization Option

## Electrical Characteristics @ $T_j = 25\text{ }^\circ\text{C}$

Symbol	Parameter	Conditions	Min	Max	Unit
<b>OFF CHARACTERISTICS</b>					
V(BR)CBO	Breakdown Voltage, Collector to Base	Bias Cond. D, $I_C=10\mu\text{A}$ dc	75		Vdc
V(BR)EBO	Breakdown Voltage, Emitter to Base	Bias Cond. D, $I_E=10\mu\text{A}$ dc	6		Vdc
V(BR)CEO	Breakdown Voltage, Collector to Emitter	Bias Cond. D, $I_C=10\text{mA}$ dc, pulsed	50		Vdc
ICES	Collector to Emitter Cutoff Current	Bias Cond. D, $V_{CE}=50\text{V}$ dc		50	nAdc
ICBO1	Collector to Base Cutoff Current	Bias Cond. D, $V_{CB}=60\text{V}$ dc		10	nAdc
IEBO	Emitter to Base Cutoff Current	Bias Cond. D, $V_{EB}=4\text{V}$ dc		10	nAdc
<b>ON CHARACTERISTICS</b>					
hFE1	Forward-Current Transfer Ratio	$V_{CE}=10\text{V}$ dc, $I_C=0.1\text{mA}$ dc	50		
hFE2	Forward-Current Transfer Ratio	$V_{CE}=10\text{V}$ dc, $I_C=1.0\text{mA}$ dc	75	325	
hFE3	Forward-Current Transfer Ratio	$V_{CE}=10\text{V}$ dc, $I_C=10\text{mA}$ dc	100		
hFE4	Forward-Current Transfer Ratio	$V_{CE}=10\text{V}$ dc, $I_C=150\text{mA}$ dc, pulsed	100	300	
hFE5	Forward-Current Transfer Ratio	$V_{CE}=10\text{V}$ dc, $I_C=500\text{mA}$ dc, pulsed	30		
VCE(sat)1	Collector to Emitter Saturation Voltage	$I_C=150\text{mA}$ dc, $I_B=15\text{mA}$ dc, pulsed		0.3	Vdc
VCE(sat)2	Collector to Emitter Saturation Voltage	$I_C=500\text{mA}$ dc, $I_B=50\text{mA}$ dc, pulsed		1	Vdc
VBE(sat)1	Base to Emitter Saturation Voltage	$I_C=150\text{mA}$ dc, $I_B=15\text{mA}$ dc, pulsed	0.6	1.2	Vdc
VBE(sat)2	Base to Emitter Saturation Voltage	$I_C=500\text{mA}$ dc, $I_B=50\text{mA}$ dc, pulsed		2	Vdc
<b>SMALL SIGNAL CHARACTERISTICS</b>					
hfe	Short Circuit Forward Current Xfer Ratio	$V_{CE}=10\text{V}$ dc, $I_C=1\text{mA}$ dc, $f=1\text{kHz}$	50		
/hfe/	Magnitude of Short Circuit Forward Current Transfer Ratio	$V_{CE}=20\text{V}$ dc, $I_C=50\text{mA}$ dc, $f=100\text{MHz}$	2.5		
Cobo	Output Capacitance	$V_{CB}=10\text{V}$ dc, $I_E=0$ , $100\text{kHz} < f < 1\text{MHz}$		8	pF
Cibo	Input Capacitance	$V_{EB}=2.0\text{V}$ dc, $I_C=0$ , $100\text{kHz} < f < 1\text{MHz}$		25	pF
<b>SWITCHING CHARACTERISTICS</b>					
ton	Saturated Turn-on Time	As defined in 19500/255 Figure 8		45	nS
toff	Saturated Turn-off Time	As defined in 19500/255 Figure 9		300	nS