



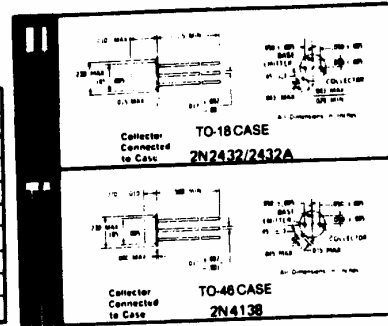
**MILITARY APPROVED  
LOW LEVEL – HIGH SPEED  
SILICON EPITAXIAL JUNCTION  
NPN SWITCHING TRANSISTORS**

**•2N2432  
•2N2432A  
2N4138**

**GEOMETRY 485**

**ELECTRICAL DATA (ABSOLUTE MAXIMUM RATINGS)**

PARAMETER	SYMBOL	2N2432/4138	2N2432A	UNITS
Collector - Emitter Breakdown Voltage	$BV_{CEO}$	30	45	V
Collector - Base Breakdown Voltage	$BV_{CBO}$	30	45	V
Emitter - Base Breakdown Voltage	$BV_{EBO}$	15	18	V
Emitter - Collector Breakdown Voltage	$BV_{ECO}$	15	18	V
Collector Current	$I_C$	100		mA
Power Dissipation (Free Air @ 25°C)	$P_D$	*300		mW
Power Dissipation (Case @ 25°C)	$P_C$	**600		mW
Storage Temperature Range	$T_{stg}$	-65°C to 200°C		
Lead Temp. (1/16" From Case)	$T_L$	300°C for 10 sec.		



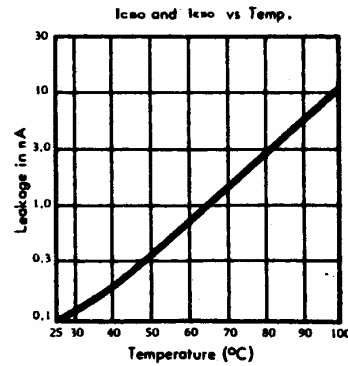
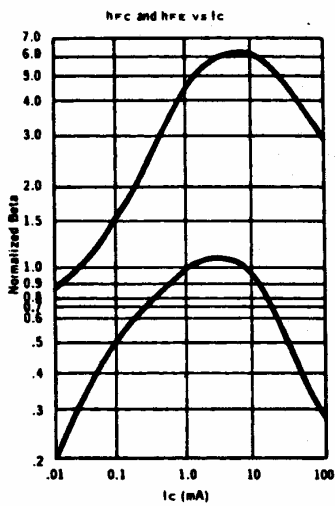
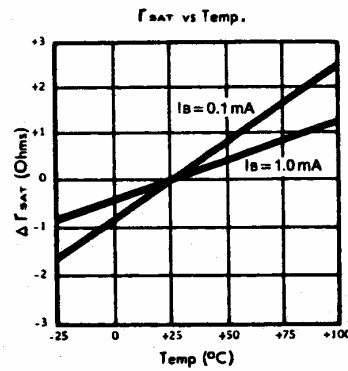
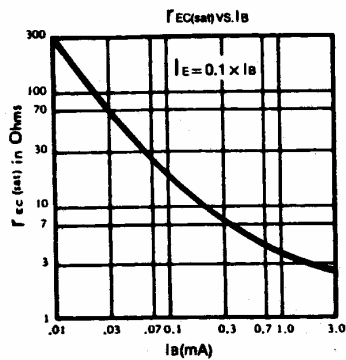
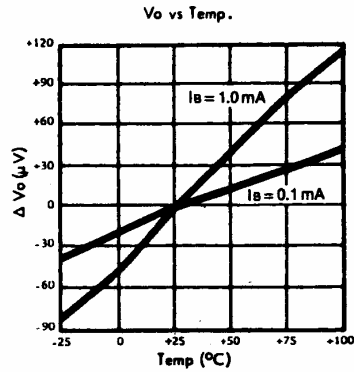
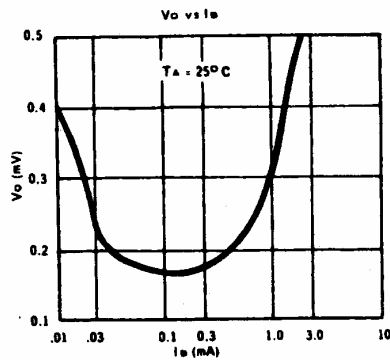
\*Derate linearly to 175°C free air temperature at the rate of 2 mW/deg C  
\*\*Derate linearly to 175°C case temperature at the rate of 4 mW/deg C

**ELECTRICAL CHARACTERISTICS:  $T_A = 25^\circ\text{C}$  (UNLESS OTHERWISE NOTED)**

PARAMETER	SYMBOL	TEST CONDITIONS	2N2432A		2N2432, 2N4138		UNITS
			MIN.	MAX.	MIN.	MAX.	
Collector - Emitter Breakdown Voltage	$BV_{CEO}$	$I_C = 10\text{mA}, I_B = 0$	45		30		V
Collector - Base Breakdown Voltage	$BV_{CBO}$	$I_C = 100\mu\text{A}, I_E = 0$	45		30		V
Emitter - Collector Breakdown Voltage	$BV_{ECO}$	$I_E = 100\mu\text{A}, I_B = 0$	18		15		V
Collector to Base Leakage	$I_{CBO}$	$V_{CB} = 25\text{V}, I_E = 0$		10		10	nA
Collector to Emitter Leakage	$I_{CES}$	$V_{CE} = 25\text{V}, V_{BE} = 0$		10		10	nA
Collector to Emitter Leakage	$I_{CES}$	$V_{CE} = 25\text{V}, V_{BE} = 0, T_A = 125^\circ\text{C}$		250		250	nA
Emitter to Base Leakage	$I_{EBO}$	$V_{EB} = 15\text{V}, I_C = 0$		2		2	nA
Emitter to Collector Leakage	$I_{ECS}$	$V_{EC} = 15\text{V}, V_{BC} = 0$		2		2	nA
Emitter to Collector Leakage	$I_{ECS}$	$V_{EC} = 15\text{V}, V_{BC} = 0, T_A = 125^\circ\text{C}$		200		200	nA
D.C. Common Emitter	$h_{FE}$	$V_{CE} = 5\text{V}, I_C = 10\mu\text{A}$	30		30		
Forward Current Transfer Ratio	$h_{FE}$	$V_{CE} = 5\text{V}, I_C = 1\text{mA}$	50		50		
D.C. Common Collector	$h_{FC}$	$V_{EC} = 5\text{V}, I_E = 200\mu\text{A}$	3		2		
Forward Current Transfer Ratio				0.15		0.15	V
Collector - Emitter Saturation Voltage	$V_{CE(sat)}$	$I_B = 0.5\text{mA}, I_C = 10\text{mA}$		0.4		0.5	mV
Offset Voltage	$V_O$	$I_B = 200\mu\text{A}, I_E = 0$		0.7		1.0	mV
Offset Voltage	$V_O$	$I_B = 1\text{mA}, I_E = 0$		15		20	Ohms
Inverted Dynamic Saturation Resistance	$r_{EC(sat)}$	$I_B = 1\text{mA}, I_E = 100\mu\text{A}, f = 1\text{kHz}$		15		20	Ohms
Small - Signal Common Emitter	$h_{fe}$	$V_{CE} = 5\text{V}, I_C = 1\text{mA}, f = 20\text{MHz}$	1		1		
Forward Current Transfer Ratio				12		12	pf-f
Common - Base Open Circuit	$C_{ob0}$	$V_{CB} = 0, I_E = 0, f = 140\text{kHz}$		12		12	pf-d
Output Capacitance	$C_{cb}$	$V_{CB} = 0, I_E = 0, f = 1\text{MHz}$		12		12	pf-d
Collector - Base Capacitance	$C_{cb}$	$V_{CB} = 0, I_E = 0, f = 1\text{MHz}$		12		12	pf-d
Common - Base Open Circuit	$C_{ib0}$	$V_{EB} = 0, I_C = 0, f = 140\text{kHz}$		12		12	pf-d
Input Capacitance	$C_{ib}$	$V_{EB} = 0, I_C = 0, f = 1\text{MHz}$		12		12	pf-d
Emitter - Base Capacitance	$C_{eb}$	$V_{EB} = 0, I_C = 0, f = 1\text{MHz}$		12		12	pf-d

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TYPICAL CHARACTERISTICS  
PNP AND NPN SWITCHING TRANSISTORS



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