2N3702 through 2N3706
MPS3702 through MPS3706

PNP . NPN SILICON GENERAL PURPOSE AF TRANSISTORS

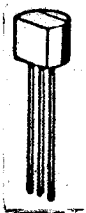
MICRO ELECTRONICS

THE ABOVE TYPES ARE SILICON PLANAR EPITAXIAL TRANSISTORS FOR GENERAL PURPOSE AF MEDIUM POWER APPLICATIONS. THE 2N3702 SERIES ARE SUPPLIED IN CASE TO-92B. THE MPS3702 SERIES ARE SUPPLIED IN CASE TO-92A.

CASE TO-92B

ECB

CASE TO-92A



EBC

ABSOLUTE MAXIMUM RATINGS		(PNP) 2N/MPS3702	(PNP) 2N/MPS3703	(NPN) 2N/MPS3704 2N/MPS3705	(NPN) 2N/MPS3706
Collector-Base Voltage	V_{CBO}	40V	50V	50V	40V
Collector-Emitter Voltage	V_{CEO}	25V	30V	30V	20V
Emitter-Base Voltage	V_{EBO}	5V	5V	5V	5V
Collector Current	I_C	0.2A	0.2A	0.8A	0.8A
Collector Peak Current	I_{CM}	0.6A	0.6A		
Total Power Dissipation ($T_C \leq 25^oC$)	P_{tot}		1W		
($T_A \leq 25^oC$)			360mW		
Operating Junction & Storage Temperature	T_j, T_{stg}		-55 to 150°C		

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

PARAMETER	SYMBOL	MIN	TYP	MAX	UNIT	TEST CONDITIONS
Collector-Base Breakdown Voltage	BV_{CBO}	↑			V	I_C=0.1mA I_E=0
Collector-Emitter Breakdown Voltage	LV_{CEO} *	Note 1			V	I_C=10mA I_B=0
Emitter-Base Breakdown Voltage	BV_{EBO}	↓			V	I_E=0.1mA I_C=0
Collector Cutoff Current	I_{CBO}			100	nA	V_{CB}=20V I_E=0
Emitter Cutoff Current	I_{EBO}			100	nA	V_{EB}=3V I_C=0
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$*					
2N/MPS3702,3			0.1	0.25	V	I_C=50mA I_B=5mA
2N/MPS3704			0.12	0.6	V	I_C=100mA I_B=5mA
2N/MPS3705			0.15	0.8	V	I_C=100mA I_B=5mA
2N/MPS3706			0.15	1	V	I_C=100mA I_B=5mA
Base-Emitter Voltage	V_{BE} *					
2N/MPS3702,3		0.6	0.78	1	V	I_C=50mA V_{CE}=5V
2N/MPS3704,5,6		0.5	0.83	1	V	I_C=100mA V_{CE}=2V
D.C. Current Gain	H_{FE} *					
2N/MPS3702		60		300		I_C=50mA V_{CE}=5V
2N/MPS3703		30		150		I_C=50mA V_{CE}=5V
2N/MPS3704		100		300		I_C=50mA V_{CE}=2V

For p-n-p devices, voltage and current values are negative.

MICRO ELECTRONICS LTD.

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TELEPHONE:- 3-430181-6 ~~3-893363, 3-892423~~
FAX: 3-410321

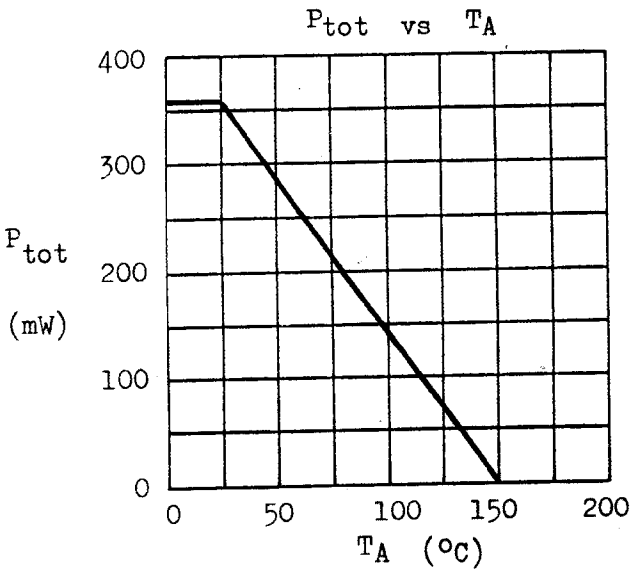
- - - Continued - - -

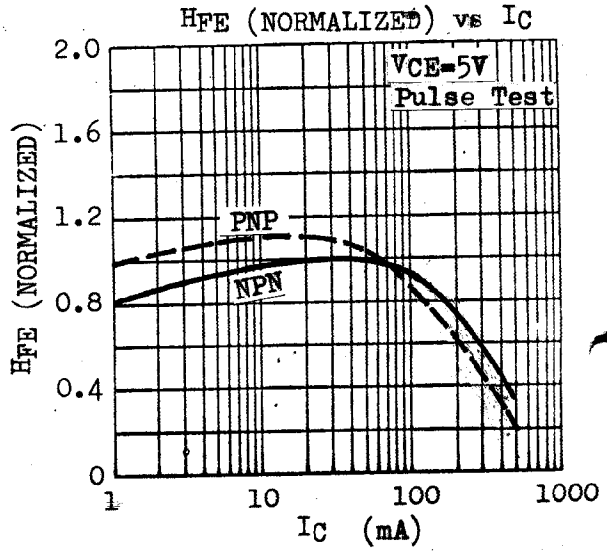
PARAMETER		SYMBOL	MIN	TYP	MAX	UNIT	TEST CONDITIONS
D.C. Current Gain	2N/MPS3705	H_{FE} *	50		150		I_C=50mA V_{CE}=2V
	2N/MPS3706		30		600		I_C=50mA V_{CE}=2V
Current Gain-Bandwidth Product		f_T					
	2N/MPS3702,3		100			MHz	IC=50mA VCE=5V
	2N/MPS3704,5,6		100			MHz	IC=50mA VCE=2V
Collector-Base Capacitance		Cob					
	2N/MPS3702,3			5	12	pF	VCB=10V IE=0
	2N/MPS3704,5,6			4	12	pF	f=1MHz

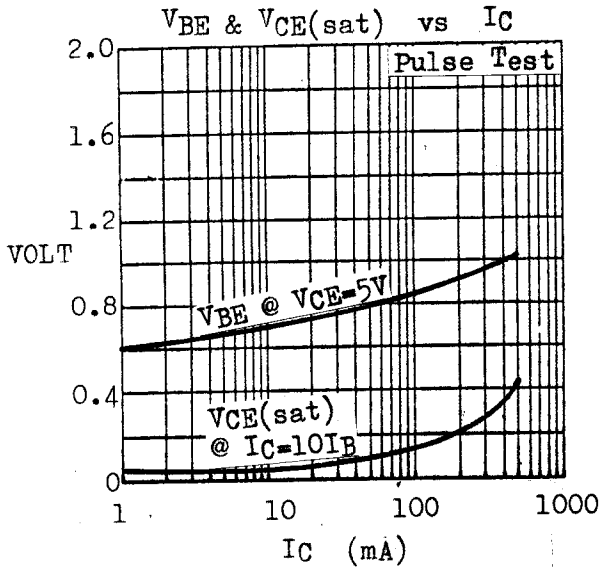
Note 1 : equal to the values of absolute maximum ratings.

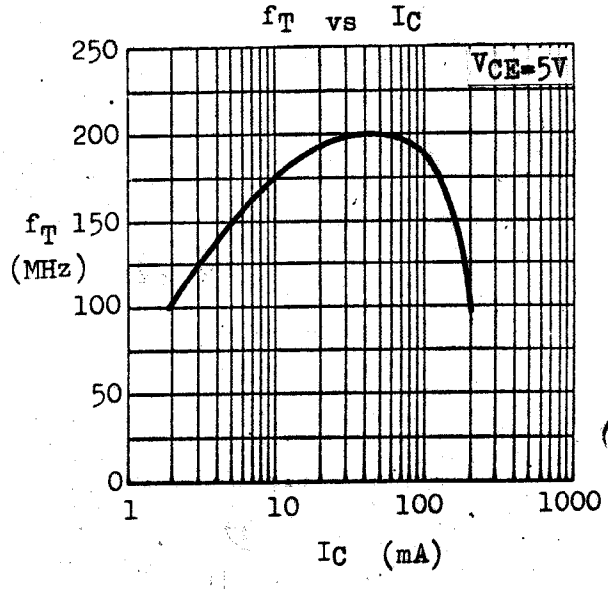
* Pulse Test : Pulse Width=0.3mS, Duty Cycle=1%

TYPICAL CHARACTERISTICS (T_A=25°C unless otherwise noted)





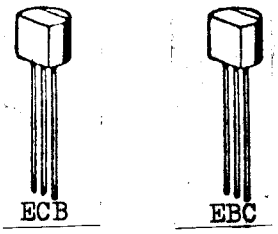




TRANSISTORS EQUIVALENT TO 2N/MPS3702 FAMILY

THE FOLLOWING TRANSISTORS, WHICH ARE CLOSELY EQUIVALENT TO THE 2N/MPS3702 FAMILY, ARE ALSO AVAILABLE.

TO-92B TO-92A WITH X-67 HEAT SINK



SPECIFICATIONS AT T_A=25°C For p-n-p devices, voltage and current values are negative.

TYPE	POLARITY	CASE (Ptot)	LVCEO (V)	BVEBO (V)	ICBO @ VCB (μA) (V)	HFE @ IC/VCE (mA) (V)	VCE(sat) @ IC/IB (V) (mA)(mA)	fT @ IC (MHz)(mA)
			min	min	max	min-max	max	min
2N3402	NPN	TO-92B with X-67 Heat Sink (560mW)	25	5	0.1 @ 25	75-225 @ 2/4.5	0.3 @ 50/3	
2N3403			25	5	0.1 @ 25	180-540 @ 2/4.5	0.3 @ 50/3	
2N3404			50	5	0.1 @ 50	75-225 @ 2/4.5	0.3 @ 50/3	
2N3405			50	5	0.1 @ 50	180-540 @ 2/4.5	0.3 @ 50/3	
2N4425			40	5	*0.03@ 40	180-540 @ 2/4.5	0.3 @ 50/3	
2N3414	NPN	TO-92B (360mW)	25	5	0.1 @ 25	75-225 @ 2/4.5	0.3 @ 50/3	
2N3415			25	5	0.1 @ 25	180-540 @ 2/4.5	0.3 @ 50/3	
2N3416			50	5	0.1 @ 50	75-225 @ 2/4.5	0.3 @ 50/3	
2N3417			50	5	0.1 @ 50	180-540 @ 2/4.5	0.3 @ 50/3	
2N4424			40	5	*0.03@ 40	180-540 @ 2/4.5	0.3 @ 50/3	
2N5220	NPN	TO-92A (350mW)	15	3	0.1 @ 10	25- @ 10/10 30-600 @ 50/10	0.5 @ 150/15	100 @ 20
2N5221	PNP		15	3	0.1 @ 10	25- @ 10/10 30-600 @ 50/10	0.5 @ 150/15	100 @ 20
2N5225	NPN		25	4	0.3 @ 15	25- @ 10/10 30-600 @ 50/10	0.8 @ 100/10	50 @ 20
2N5226	PNP		25	4	0.3 @ 15	25- @ 10/10 30-600 @ 50/10	0.8 @ 100/10	50 @ 20
2N5354	PNP	TO-92B (360mW)	25	4	*0.1 @ 25	40-120 @ 50/1 20- @ 300/5	0.25 @ 50/2.5 1.0 @ 300/30	
2N5355	PNP		25	4	*0.1 @ 25	100-300 @ 50/1 40- @ 300/5		
2N5356	PNP		25	4	*0.1 @ 25	250-500 @ 50/1 75- @ 300/5		
2N5365	PNP	TO-92B (360mW)	40	4	*0.1 @ 40	40-120 @ 50/1 20- @ 300/5	0.25 @ 50/2.5 1.0 @ 300/30	
2N5366	PNP		40	4	*0.1 @ 40	100-300 @ 50/1 40- @ 300/5		
2N5367	PNP		40	4	*0.1 @ 40	250-500 @ 50/1 75- @ 300/5		

* ICES

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TYPE	POLARITY	CASE (Ptot)	LVCEO (V)	BVEBO (V)	I_{CES} @ V_{CE} (μA) (V)	H_{FE} @ Ic/VCE (mA)(V)	VCE(sat) @ I_C/I_B (V) (mA)(mA)	f_T @ Ic (MHz)(mA)
			min	min	max	min-max	max	min
2N5418	NPN	TO-92B (400mW)	25	4	0.1 @ 25	40-120 @ 50/1 20- @ 300/5	0.25 @ 50/2.5 1.0 @ 300/30	
2N5419	NPN		25	4	0.1 @ 25	100-300 @ 50/1 40- @ 300/5		
2N5420	NPN		25	4	0.1 @ 25	250-500 @ 50/1 75- @ 300/5		
2N5447	PNP	These are TO-92F transistors. Their electrical characteristics are exactly identical to 2N3702, 3, 4, 5, 6 respectively.						
2N5448	PNP							
2N5449	NPN							
2N5450	NPN							
2N5451	NPN							