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2N3702 through 2N3706 MPS3702 through MPS3706

PNP . NPN SILICON GENERAL PURPOSE AF TRANSISTORS

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

CASE TO-92A



ECB



EBC

ABSOLUTE MAXIMUM RATINGS

		(PNP) 2N/MPS3702	(PNP) 2N/MPS3703	(NPN) 2N/MPS3704 2N/MPS3705	(NPN) 2N/MPS3706
Collector-Base Voltage	V _{CB0}	40V	50V	50V	40V
Collector-Emitter Voltage	V _{CE0}	25V	30V	30V	20V
Emitter-Base Voltage	V _{EB0}	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 ≤ 25°C)	P _{tot}			1W	
(T _A ≤ 25°C)				360mW	
Operating Junction & Storage Temperature	T _j , T _{stg}			-55 to 150°C	

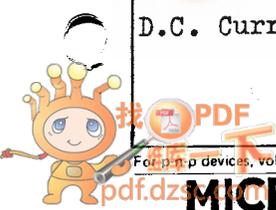
ELECTRICAL CHARACTERISTICS (T_A=25°C unless otherwise noted)

PARAMETER	SYMBOL	MIN	TYP	MAX	UNIT	TEST CONDITIONS
Collector-Base Breakdown Voltage	BV _{CB0}	↑			V	I _C =0.1mA I _E =0
Collector-Emitter Breakdown Voltage	LV _{CE0} *	Note 1			V	I _C =10mA I _B =0
Emitter-Base Breakdown Voltage	BV _{EB0}	↓			V	I _E =0.1mA I _C =0
Collector Cutoff Current	I _{CB0}			100	nA	V _{CB} =20V I _E =0
Emitter Cutoff Current	I _{EB0}			100	nA	V _{EB} =3V I _C =0
Collector-Emitter Saturation Voltage	V _{CE(sat)} *				V	
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} *				V	
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 pnp devices, voltage and current values are negative.

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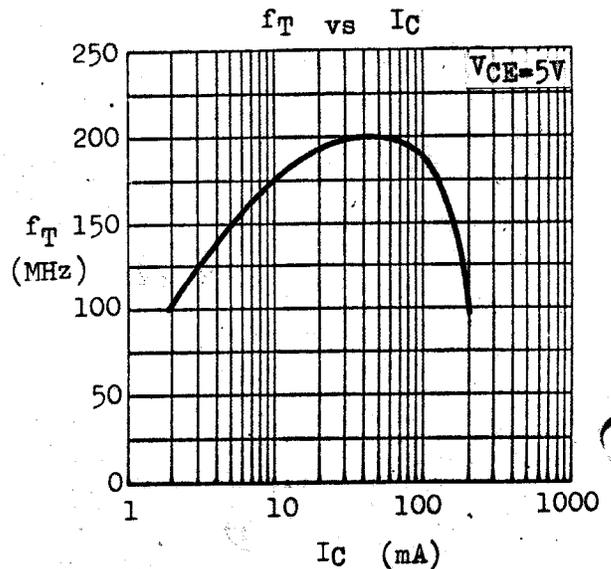
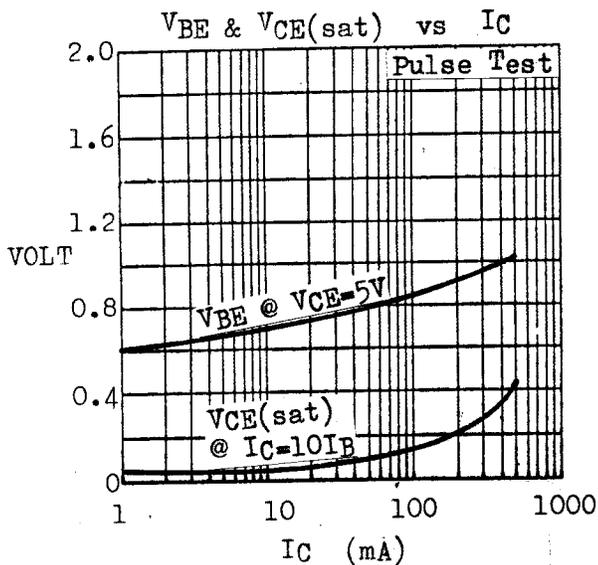
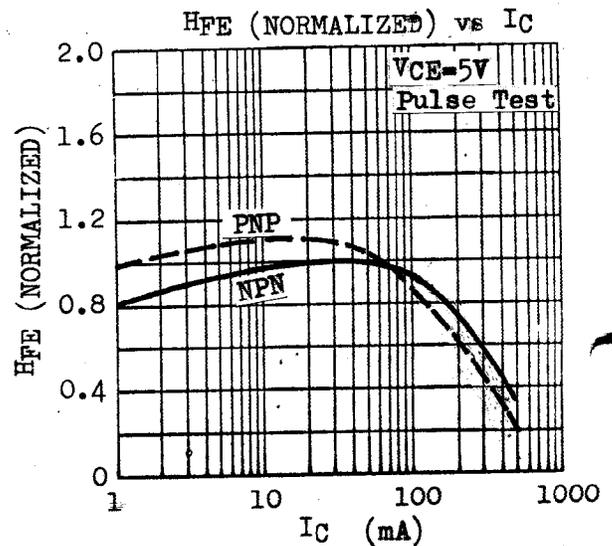
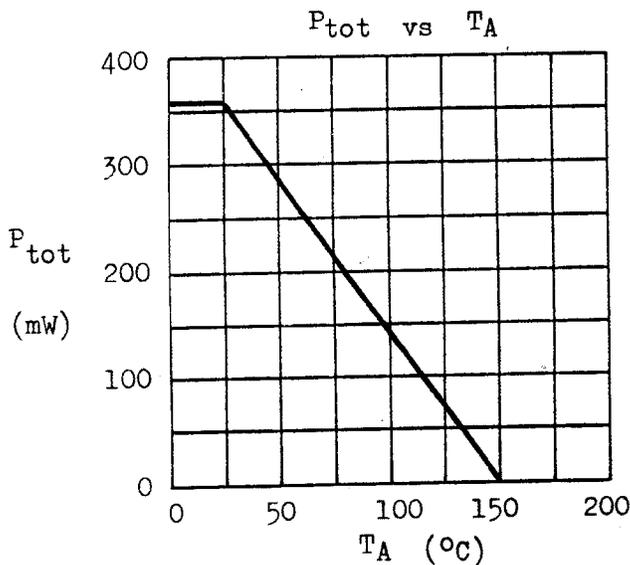
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PARAMETER	SYMBOL	MIN	TYP	MAX	UNIT	TEST CONDITIONS
D.C. Current Gain	2N/MPS3705	50		150		$I_C=50mA$ $V_{CE}=2V$
	2N/MPS3706	30		600		$I_C=50mA$ $V_{CE}=2V$
Current Gain-Bandwidth Product	2N/MPS3702,3	100			MHz	$I_C=50mA$ $V_{CE}=5V$
	2N/MPS3704,5,6	100			MHz	$I_C=50mA$ $V_{CE}=2V$
Collector-Base Capacitance	2N/MPS3702,3		5	12	pF	$V_{CB}=10V$ $I_E=0$
	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 ($T_A=25^\circ C$ unless otherwise noted)



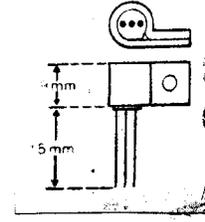
TRANSISTORS EQUIVALENT TO 2N/MPS3702 FAMILY

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 $T_A=25^\circ\text{C}$

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

TYPE	POLARITY	CASE (P_{tot})	V_{CE0} (V)	V_{EBO} (V)	I_{CBO} @ V_{CB} (μA) (V)	H_{FE} @ I_C/V_{CE} (mA) (V)	$V_{CE(sat)}$ @ I_C/I_B (V) (mA)(mA)	f_T @ I_C (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		

2N/MPS3702 FAMILY

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TYPE	POLARITY	CASE (P _{tot})	LVCEO (V)	BVEBO (V)	I _{CES} @ V _{CE} (μ A) (V)	H _{FE} @ I _C /V _{CE} (mA)(V)	V _{CE} (sat) @ I _C /I _B (V) (mA)(mA)	f _T @ I _C (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							

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