

Transistors

TO-92 (JEDEC Standards Numbers)

●NPN Transistors

General purpose small signal amplifiers

Part No.	Package	V_{CB0} Min.	V_{CE0} Min.	V_{EB0} Min.	I_{CB0} Max.	@ V_{CB}	h_{FE} Min. Max.	@ I_C & V_{CE}	$V_{CE(sat)}$ Max.	$V_{BE(sat)}$ & Max.	@ I_C	C_{ob} Max.	f_T Min.	@ I_C	NF	I_C Max.
2N2925	TO-92 (ECB)	25V	25V	5V	100nA	25V	235 470	2.0mA 10V				10pF	180MHz	Typ.		200mA
2N3711 MPS3711	TO-92 (ECB) (EBC)	30V	30V	6V	100nA	20V	180 660	1.0mA 5V	1.0V		10mA					200mA
2N3860	TO-92 (ECB)	30V	30V	4V	50nA	40V	150 300	2.0mA 4.5V	0.125V		10mA	4pF	90MHz	2.0mA		100mA
2N5088	TO-92 (EBC)	35V	30V	4.5V	100nA	30V	300 350 300	100 μ A 5V 1.0mA 5V 10mA 5V	0.3V	0.8V	10mA	4pF	50MHz	0.5mA	3dB	200mA
2N5172 MPS172	TO-92 (ECB) (EBC)	25V	25V	5V	100nA	25V	100 500	10mA 10V	0.25V	1.2V	10mA	10pF	200MHz	Typ.		200mA
2N5210	TO-92 (EBC)	50V	50V	4.5V	50nA	35V	200 250 250	100 μ A 5V 1.0mA 5V 10mA 5V	0.7V	0.85V	10mA	4pF	30MHz	0.5mA	2dB	200mA
2N5232A	TO-92 (ECB)	70V	50V	5V	100nA	50V	250 500	2mA 5V	0.125V		10mA	4pF			5dB	100mA
MPS8097	TO-92 (EBC)	60V	40V	6V	30nA 10 μ A	40V 60V	250 700	100 μ A 5V	0.65V ($V_{BE(on)}$)		100mA	4pF	200MHz	10mA	2dB	200mA
MPS-A09	TO-92 (EBC)	50V	50V	3V	100nA	25V	100 600	100 μ A 5V	0.9V		10mA	5pF	30MHz	0.5mA	1.4dB (Typ.)	200mA
MPS-A18	TO-92 (EBC)	45V	45V	6.5V	50nA	30V	400 500 500	10 μ A 5V 100 μ A 5V 1.0mA 5V 10mA 5V	0.2V 0.3V		10mA 50mA	3pF	100MHz	1mA	4dB (Typ.)	200mA
MPS-A20	TO-92 (EBC)	40V	40V	4V	100nA	30V	40 400	5mA 10V	0.25V		10mA	4pF	125MHz	5mA		100mA

General purpose amplifiers and switches

Part No.	Package	V_{CB0} Min.	V_{CE0} Min.	V_{EB0} Min.	I_{CB0} Max.	@ V_{CB}	h_{FE} Min. Max.	@ I_C & V_{CE}	$V_{CE(sat)}$ Max.	$V_{BE(sat)}$ & Max.	@ I_C	C_{ob} Max.	f_T Min.	@ I_C	t_{off} Max.	I_C Max.
PN2222	TO-92 (EBC)	60V	30V	5V	100nA	50V	35 50 75 100 50 30	0.1mA 10V 1.0mA 10V 10mA 10V 150mA 10V 150mA 1V 500mA 10V	0.4V 1.6V	1.3V 2.6V	150mA 500mA	8pF	250MHz	20mA		600mA
PN2222A	TO-92 (EBC)	75V	40V	6V	100nA	60V	35 50 75 100 50 30	0.1mA 10V 1.0mA 10V 10mA 10V 150mA 10V 150mA 1V 500mA 10V	0.3V 1V	1.2V 2V	150mA 500mA	8pF	250MHz	20mA	285ns	600mA
2N3704 MPS3704	TO-92 (ECB) (EBC)	50V	30V	5V	100nA	20V	100 300	50mA 2V	0.6V	1.0V	100mA	12pF	100MHz	50mA		800mA
2N3706 MPS3706	TO-92 (ECB) (EBC)	40V	20V	5V	100nA	20V	30 600	50mA 2V	1.0V	1.0V	100mA	12pF	100MHz	50mA		300mA
2N3903	TO-92 (EBC)	80V	40V	6V	50nA (CEX)	30V	20 35 50 30 15	0.1mA 1V 1.0mA 1V 10mA 1V 50mA 1V 100mA 1V	0.2V 0.3V	0.85V 0.95V	10mA 50mA	4pF	250MHz	10mA	225ns	200mA

General purpose amplifiers and switches

Part No.	Package	BV _{CBO} Min.	BV _{CEO} Min.	BV _{EBO} Min.	I _{CBO} Max.	h _{FE}			V _{CE} (sat) Max.	V _{BE} (sat)		C _{ob} Max.	f _T Min.	t _{off} Max.	I _C Max.		
						@ VCB	Min.	Max.		@ I _C & V _{CE}	Max.					Max.	@ I _C
2N3904	TO-92 (EBC)	60V	40V	6V	50nA	30V	40	0.1mA	1V	0.2V	0.85V	10mA	4pF	300MHz	10mA	250ns	200mA
							70	1.0mA	1V								
							150	10mA	1V								
							60	50mA	1V								
							30	100mA	1V								
2N4124	TO-92 (EBC)	30V	25V	5V	50nA	20V	120	360	2.0mA	1V	0.3V	0.95V	50mA	4pF	300MHz	10mA	200mA
							60	50mA	1V								
2N4400	TO-92 (EBC)	60V	40V	6V	100nA	35V	20	1.0mA	1V	0.4V	0.95V	150mA	6.5pF	200MHz	20mA	255ns	600mA
							40	10mA	1V								
							50	150mA	1V								
							20	500mA	2V								
							20	500mA	2V								
2N4401	TO-92 (EBC)	60V	40V	6V	100nA	35V	20	0.1mA	1V	0.4V	0.95V	150mA	6.5pF	250MHz	20mA	225ns	600mA
							40	1mA	1V								
							80	10mA	1V								
							100	150mA	1V								
							40	500mA	2V								
MPS6515	TO-92 (EBC)	40V	25V	4V	50nA	30V	250	500	2mA	10V	0.5V	50mA	3.5pF	250MHz	10mA	NF 2dB	100mA
150	100mA	10V															
MPS6530	TO-92 (EBC)	60V	40V	5V	100nA	40V	30	10mA	1V	0.5V	1.0V	100mA	8pF	390MHz	Typ.		600mA
							40	100mA	1V								
							25	500mA	10V								
MPS6531	TO-92 (EBC)	60V	40V	5V	50nA	40V	60	10mA	1V	0.3V	1.0V	100mA	5pF	390MHz	Typ.		600mA
							90	100mA	1V								
							50	500mA	10V								

Transistors

Medium power amplifiers

Part No.	Package	BV _{CBO} Min.	BV _{CEO} Min.	BV _{EBO} Min.	I _{CBO} Max.	h _{FE}			V _{CE} (sat) Max.	V _{BE} (sat)		C _{ob} Max.	f _T Min.	t _{off} Max.	I _C Max.
						@ VCB	Min.	Max.		@ I _C & V _{CE}	Max.				
MPS-A05	TO-92 (EBC)	60V	60V	4V	100nA	60V	100	10mA	1V	0.25V	100mA		50MHz	10mA	500mA
100	100mA	1V													
MPS-A06	TO-92 (EBC)	80V	80V	4V	100nA	80V	100	10mA	1V	0.25V	100mA		50MHz	10mA	500mA
							100	100mA	1V						

Darlington amplifiers

Part No.	Package	BV _{CBO} Min.	BV _{CEO} Min.	BV _{EBO} Min.	I _{CBO} Max.	h _{FE}			V _{CE} (sat) Max.	V _{BE} (sat)		C _{ob} Max.	f _T Min.	t _{off} Max.	NF	I _C Max.	
						@ VCB	Min.	Max.		@ I _C & V _{CE}	Max.						Max.
2N6426	TO-92 (EBC)	40V	40V	12V	50nA	30V	20k	200k	10mA	5V	1.2V	2.0V	5mA	7pF		10dB	500mA
							30k	300k	100mA	5V							
							20k	200k	500mA	5V							
2N6427	TO-92 (EBC)	40V	40V	12V	50nA	30V	10k	100k	10mA	5V	1.2V	2.0V	50mA	7pF		10dB	500mA
							20k	200k	100mA	5V							
							14k	140k	500mA	5V							
MPS-A13	TO-92 (EBC)	(CES) 30V		10V	100nA	30V	5k	10mA	5V	1.5V	100mA	10pF	125MHz	10mA	500mA		
10k	100mA	5V															
MPS-A14	TO-92 (EBC)	(CES) 30V		10V	100nA	30V	10k	10mA	5V	1.5V	100mA	10pF	125MHz	10mA	500mA		
20k	100mA	5V															
MPS-A26	TO-92 (EBC)	(CES) 50V		10V	100nA	40V	10k	10mA	5V	1.5V	100mA				500mA		
10k	100mA	5V															
MPS-A27	TO-92 (EBC)	(CES) 60V		10V	100nA	50V	10k	10mA	5V	1.5V	100mA				500mA		
10k	100mA	5V															
MPS-A28	TO-92 (EBC)	(CES) 80V		12V	100nA	60V	10k	10mA	5V	1.5V	100mA	8pF	125MHz	10mA	500mA		
10k	100mA	5V															
MPS-A29	TO-92 (EBC)	(CES) 100V		12V	100nA	80V	10k	10mA	5V	1.2V	10mA	8pF	125MHz	10mA	500mA		
10k	100mA	5V															
MPS-D04	TO-92 (EBC)	25V		10V	1.0 μA	20V	1k	10mA	5V	1.0V	100mA					500mA	
							2k	100mA	5V								
							1k	300mA	5V								

Transistors

TO-92 (JEDEC Standards Numbers)

●PNP Transistors

General purpose small signal amplifiers

Part No.	Package	BV _{CEO} Min.	BV _{CE0} Min.	BV _{EBO} Min.	I _{CBO} Max. @V _{CB}	h _{FE}			V _{CE} V _{CE}	V _{CE} (sat) & V _{BE} (sat)		C _{ob} Max.	f _T		t _{off} /NF Max.	I _C Max.	
						Min.	Max.	@I _C & V _{CE}		Max.	Max.		@ I _C	Min.			@ I _C
2N3703 MPS3703	TO-92 (ECB) (EBC)	50V	30V	5V	100nA 20V	30	150	50mA	5V	0.25V	1.0V (V _{BE (on)})	50mA	12pF	100MHz	50mA		200mA
2N5086	TO-92 (EBC)	50V	50V	3V	100nA 40V	150	500	100 μA 1.0mA 10mA	5V 5V 5V	0.3V	0.85V (V _{BE (on)})	10mA	6pF	40MHz	0.5mA	NF 3dB	200mA
2N5087	TO-92 (EBC)	50V	50V	3V	100nA 40V	250	800	100 μA 1.0mA 10mA	5V 5V 5V	0.3V		10mA	6pF	40MHz	0.5mA	NF 2dB	200mA
MPS-A70	TO-92 (EBC)	40V	40V	4V	100nA 30V	40	400	5mA	10V	0.25V		10mA	6pF	125MHz	5mA		100mA

General purpose amplifiers and switches

Part No.	Package	BV _{CEO} Min.	BV _{CE0} Min.	BV _{EBO} Min.	I _{CBO} Max. @V _{CB}	h _{FE}			V _{CE} V _{CE}	V _{CE} (sat) & V _{BE} (sat)		C _{ob} Max.	f _T		t _{off} Max.	I _C Max.	
						Min.	Max.	@I _C & V _{CE}		Max.	Max.		@ I _C	Min.			@ I _C
PN2907	TO-92 (EBC)	60V	40V	5V	100nA 50V	35		0.1mA 1.0mA 10mA 100mA 300mA 500mA	10V 10V 10V 10V 10V 10V	0.4V 1.6V	1.3V 2.6V	150mA 500mA	8pF	200MHz	50mA	180ns	600mA
PN2907A	TO-92 (EBC)	60V	60V	5V	100nA 50V	75		0.1mA 1.0mA 10mA 100mA 300mA 500mA	10V 10V 10V 10V 10V 10V	0.4V 1.6V	1.3V 2.6V	150mA 500mA	8pF	200MHz	50mA	180ns	600mA
2N3906	TO-92 (EBC)	40V	40V	5V	50nA 30V (CES)	60		0.1mA 1.0mA 10mA 50mA 100mA	1V 1V 1V 1V 1V	0.25V 0.4V	0.85V 0.95V	10mA 50mA	4.5pF	250MHz	10mA	300ns	200mA
2N4125	TO-92 (EBC)	30V	30V	4V	50nA 20V	50	150	2mA 50mA	1V 1V	0.4V	0.95V	50mA	4.5pF	200MHz	10mA		200mA
2N4126	TO-92 (EBC)	25V	25V	4V	50nA 20V	120	360	2mA 50mA	1V 1V	0.4V	0.95V	50mA	4.5pF	250MHz	10mA		200mA
2N4403	TO-92 (EBC)	40V	40V	5V	100nA 35V	30		0.1mA 1mA 10mA 150mA 500mA	1V 1V 1V 2V 2V	0.4V 0.75V	0.95V 1.3V	150mA 500mA	8.5pF	200MHz	20mA	255ns	600mA
2N6076	TO-92 (ECB)	25V	25V	5V	100nA 25V (CES)	100	500	10mA	10V	0.25V	0.85V	10mA	13pF	200MHz	Typ.	260ns	100mA
MPS3638	TO-92 (EBC)	25V	(CES) 25V	4V	100nA 15V (CES)	20		10mA 50mA 300mA	10V 1V 2V	0.25V 1.0V	1.1V 2.0V	50mA 300mA	20pF	100MHz	50mA	170ns	500mA
MPS3638A	TO-92 (EBC)	25V	(CES) 25V	4V	100nA 15V (CES)	80		1.0mA 10mA 50mA 300mA	10V 10V 1V 2V	0.25V 1.0V	1.1V 2.0V	50mA 300mA	10pF	150MHz	50mA	170ns	500mA
MPS4250	TO-92 (EBC)	40V	40V	5V	100nA 40V	250	700	0.1mA 1mA 10mA	5V 5V 5V	0.25V		10mA	6pF			NF 2.0dB	200mA
MPS6519	TO-92 (EBC)	40V	25V	4V	50nA 20V	250	500	2mA 100mA	10V 10V	0.5V		50mA	6pF	200MHz	Typ.	NF 2.0dB	100mA
MPS6534	TO-92 (EBC)	40V	40V	4V	100nA 30V	60		10mA 90mA 500mA	1V 1V 10V	0.5V	1.0V	100mA	8pF	260MHz	Typ.		500mA

● Medium power amplifiers

Part No.	Package	BV _{CEO} Min.	BV _{CE0} Min.	BV _{EB0} Min.	I _{CB0} Max.	@V _{CB}	h _{FE} Min.	h _{FE} Max.	@I _c & V _{CE}	V _{CE} (sat) Max.	V _{BE} (sat) Max.	@ I _c	C _{ob} Max.	f _T Min.	@ I _c	t _{on} Max.	I _c Max.	
2N5819	TO-92 (EBC)	50V	40V	5V	100nA	25V	150	300	2mA 500mA	5V 2V	0.75V	1.2V	500mA	15pF	135MHz	50mA		750mA
MPS4354	TO-92 (EBC)	60V	60V	5V	100nA	50V	25	40	0.1mA 1.0mA 10mA 100mA 500mA	10V 10V 10V 10V 10V	0.15V 0.50V	0.9V 1.1V	150mA 500mA	30pF	100MHz	50mA	400ns	800mA
MPS6562	TO-92 (EBC)	25V	25V	5V	100nA	20V	35	50	10mA 100mA 500mA	1V 1V 3V	0.50V	1.2V	500mA	30pF	60MHz	10mA		500mA
MPS-A55	TO-92 (EBC)	60V	60V	4V	100nA	60V	100	100	10mA 100mA	1V 1V	0.25V	1.2V (V _{BE(on)})	100mA		50MHz	100mA		500mA
MPS-A56	TO-92 (EBC)	80V	80V	4V	100nA	80V	50	50	10mA 100mA	1V 1V	0.25V	1.2V (V _{BE(on)})	100mA		50MHz	100mA		500mA

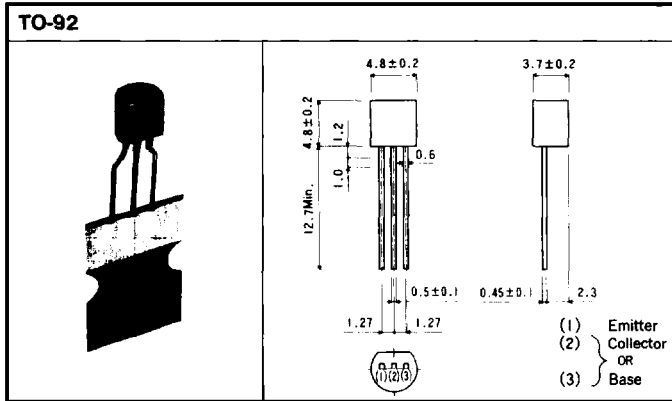
● Darlington amplifiers

Part No.	Package	BV _{CEO} Min.	BV _{CE0} Min.	BV _{EB0} Min.	I _{CB0} Max.	@V _{CB}	h _{FE} Min.	h _{FE} Max.	@I _c & V _{CE}	V _{CE} (sat) Max.	V _{BE} (sat) Max.	@ I _c	C _{ob} Max.	f _T Min.	@ I _c	t _{off} /NF	I _c Max.
MPS-A63	TO-92 (EBC)	30V	30V (CES)	10V	100nA	30V	5K	10K	10mA 100mA	5V 5V	1.5V	100mA	7pF	125MHz	10mA		500mA
MPS-A64	TO-92 (EBC)	30V	30V (CES)	10V	100nA	30V	10K	20K	10mA 100mA	5V 5V	1.5V	100mA	7pF	125MHz	10mA		500mA
MPS-A65	TO-92 (EBC)	30V	30V (CES)	8V	100nA	30V	50K	20K	10mA 100mA	5V 5V	1.5V	100mA		100MHz	10mA	2dB Typ.	500mA

Transistors

TO-92

(Unit : mm)



● Packaging specifications

(Unit : mm)

