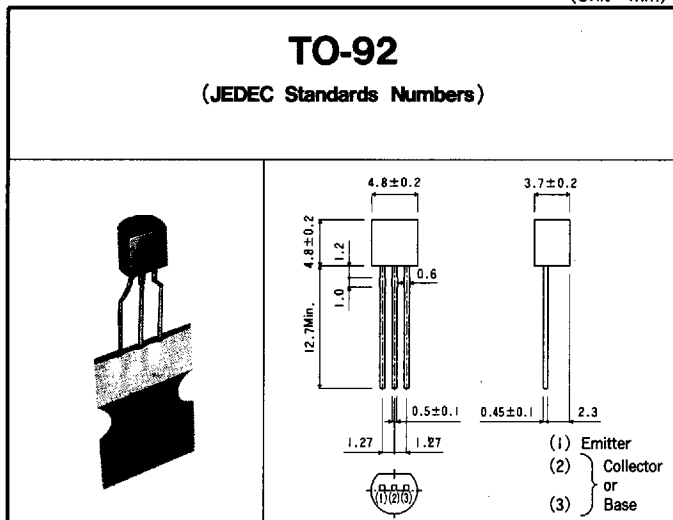


U.S. European Type Series

TO-92

Package style and dimensions

(Unit : mm)



NPN Transistors

Electrical characteristics of each Part No. can be looked up from the data of DIE No.

General purpose small signal amplifiers

Part No.	Package	BV _{CEO}	BV _{CE0}	BV _{EB0}	I _{CBO}	@V _{CB}	h _{FE}		@I _C & V _{CE}		V _{CE(sat)}	V _{BE(sat)}	C _{ob} Max.	f _T	NF	I _C Max.	DIE No.	
		Min.	Min.	Min.	Max.		Min.	Max.	Max.	Max.	Max.	Max.		Min.				@ I _C
2N2925	TO-92 (ECB)	25V	25V	5V	100nA	25V	235	470	2.0mA	10V			10pF	160MHz Typ.		200mA	C22	
2N3711 MPS3711	TO-92 (ECB) (EBC)	30V	30V	6V	100nA	20V	180	660	1.0mA	5V	1.0V	10mA				200mA	C22	
2N3860	TO-92 (ECB)	30V	30V	4V	50nA	40V	150	300	2.0mA	4.5V	0.125V	10mA	4pF	90MHz 2.0mA		100mA	C22	
2N5088	TO-92 (EBC)	35V	30V	4.5V	100nA	30V	300 350 300	900	100 μA 1.0mA 10mA	5V 5V 5V	0.3V	0.8V	10mA	4pF	50MHz 0.5mA	3dB	200mA	C22
2N5172 MPS5172	TO-92 (ECB) (EBC)	25V	25V	5V	100nA	25V	100	500	10mA	10V	0.25V	1.2V	10mA	10pF	200MHz Typ.		200mA	C22
2N5210	TO-92 (EBC)	50V	50V	4.5V	50nA	35V	200 250 250	600	100 μA 1.0mA 10mA	5V 5V 5V	0.7V	0.85V	10mA	4pF	30MHz 0.5mA	2dB	200mA	C22
2N5232A	TO-92 (ECB)	70V	50V	5V	100nA	50V	250	500	2mA	5V	0.125V	10mA	4pF		5dB	100mA	C22	
MPS8097	TO-92 (EBC)	60V	40V	6V	30nA 10 μA	40V 60V	250	700	100 μA	5V	0.65V (V _{BE(on)})	100mA	4pF	200MHz 10mA	2dB	200mA	C22	
MPS-A09	TO-92 (EBC)	50V	50V	3V	100nA	25V	100	600	100 μA	5V	0.9V	10mA	5pF	30MHz 0.5mA	1.4dB (Typ.)	200mA	C22	
MPS-A18	TO-92 (EBC)	45V	45V	6.5V	50nA	30V	400 500 500 500	1500	10 μA 100 μA 1.0mA 10mA	5V 5V 5V 5V	0.2V 0.3V	10mA 50mA	3pF	100MHz 1mA	4dB (Typ.)	200mA	C22	
MPS-A20	TO-92 (EBC)	40V	40V	4V	100nA	30V	40	400	5mA	10V	0.25V	10mA	4pF	125MHz 5mA		100mA	C22	

NPN Transistors

Electrical characteristics of each Part No. can be looked up from the data of DIE No.

■ General purpose amplifiers and switches

Part No.	Package	BV _{CSO} Min.	BV _{CEO} Min.	BV _{ESD} Min.	I _{CBO} Max.	@V _{CB}	h _{FE}			V _{CE(sat)} Max.	V _{BE(sat)} Max.	@I _C	C _{ob} Max.	f _T Min.	@ I _c	t _{off} Max.	I _c Max.	DIE No.	
							Min.	Max.	@ I _c & V _{CE}										
PN2222	TO-92 (EBC)	60V	30V	5V	100nA	50V	35	0.1mA	10V	0.4V	1.3V	150mA	8pF	250MHz	20mA		600mA	C31	
							50	1.0mA	10V										
							75	300	10mA										10V
							100	150mA	10V										
							50	150mA	1V										
30	500mA	10V																	
PN2222A	TO-92 (EBC)	75V	40V	6V	100nA	60V	35	0.1mA	10V	0.3V	1.2V	150mA	8pF	250MHz	20mA	285ns	600mA	C31	
							50	1.0mA	10V										
							75	300	10mA										10V
							100	150mA	10V										
							50	150mA	1V										
30	500mA	10V																	
2N3704 MPS3704	TO-92 (ECB) (EBC)	50V	30V	5V	100nA	20V	100	300	50mA	2V	0.6V	1.0V	100mA	12pF	100MHz	50mA		800mA	D11
2N3706 MPS3706	TO-92 (ECB) (EBC)	40V	20V	5V	100nA	20V	30	600	50mA	2V	1.0V	1.0V	100mA	12pF	100MHz	50mA		800mA	D11
2N3903	TO-92 (EBC)	60V	40V	6V	50nA (CEX)	30V	20	0.1mA	1V	0.2V	0.85V	10mA	4pF	250MHz	10mA	225ns	200mA	C37	
							35	1.0mA	1V										
							50	10mA	1V										
							30	50mA	1V										
							15	100mA	1V										
2N3904	TO-92 (EBC)	60V	40V	6V	50nA (CEX)	30V	40	0.1mA	1V	0.2V	0.85V	10mA	4pF	300MHz	10mA	250ns	200mA	C37	
							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	C37
2N4400	TO-92 (EBC)	60V	40V	6V	100nA	35V	20	1.0mA	1V	0.4V	0.95V	150mA	6.5pF	200MHz	20mA	255ns	600mA	C31	
							40	10mA	1V										
							50	150mA	1V										
							20	500mA	2V										
							20	1.0mA	1V										
2N4401	TO-92 (EBC)	60V	40V	6V	100nA	35V	20	0.1mA	1V	0.4V	0.95V	150mA	6.5pF	250MHz	20mA	225ns	600mA	C31	
							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	C22
MPS6530	TO-92 (EBC)	60V	40V	5V	100nA	40V	30	10mA	1V	0.5V	1.0V	100mA	8pF	390MHz	Typ.		600mA	C31	
							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	C31	
							90	100mA	1V										
							50	500mA	10V										

SPECIFICATION TABLES
BIPOLAR TRANSISTORS

U.S. European Type Series

NPN Transistors

Electrical characteristics of each Part No. can be looked up from the data of DIE No.

■ Medium power amplifiers

Part No.	Package	V_{CB0}	V_{CE0}	V_{EBO}	I_{CBO} Max.	@ VCB	h_{FE}		@ Ic & VCE	$V_{CE(sat)}$ Max.	$V_{BE(sat)}$ Max.	@ Ic	C_{ob} Max.	f_T		t_{off} Max.	Ic Max.	DIE NO.
		Min.	Min.	Min.			Min.	Max.						Min.	Max.			
MPS-A05	TO-92 (EBC)	60V	60V	4V	100nA	60V	100	100	10mA 100mA	1V 1V	0.25V	100mA		50MHz	10mA		500mA	D16
MPS-A06	TO-92 (EBC)	80V	80V	4V	100nA	80V	100	100	10mA 100mA	1V 1V	0.25V	100mA		50MHz	10mA		500mA	D16

■ Darlington amplifiers

Part No.	Package	V_{CB0}	V_{CE0}	V_{EBO}	I_{CBO} Max.	@ VCB	h_{FE}		@ Ic & VCE	$V_{CE(sat)}$ Max.	$V_{BE(sat)}$ Max.	@ Ic	C_{ob} Max.	f_T		NF	Ic Max.	DIE NO.
		Min.	Min.	Min.			Min.	Max.						Min.	Max.			
2N6426	TO-92 (EBC)	40V	40V	12V	50nA	30V	20k	200k	10mA 5V	5V	1.2V	5mA	7pF			10dB	500mA	D25
2N6427	TO-92 (EBC)	40V	40V	12V	50nA	30V	10k	100k	10mA 5V	5V	1.2V	50mA	7pF			10dB	500mA	D25
MPS-A13	TO-92 (EBC)	(CES) 30V		10V	100nA	30V	5k	10k	10mA 100mA	5V 5V	1.5V	100mA	10pF	125MHz	10mA		500mA	D25
MPS-A14	TO-92 (EBC)	(CES) 30V		10V	100nA	30V	10k	20k	10mA 100mA	5V 5V	1.5V	100mA	10pF	125MHz	10mA		500mA	D25
MPS-A26	TO-92 (EBC)	(CES) 50V		10V	100nA	40V	10k	10k	10mA 100mA	5V 5V	1.5V	100mA					500mA	D25
MPS-A27	TO-92 (EBC)	(CES) 60V		10V	100nA	50V	10k	10k	10mA 100mA	5V 5V	1.5V	100mA					500mA	D69
MPS-A28	TO-92 (EBC)	(CES) 80V		12V	100nA	60V	10k	10k	10mA 100mA	5V 5V	1.5V	100mA	8pF	125MHz	10mA		500mA	D69
MPS-A29	TO-92 (EBC)	(CES) 100V		12V	100nA	80V	10k	10k	10mA 100mA	5V 5V	1.2V	10mA	8pF	125MHz	10mA		500mA	D69
MPS-D04	TO-92 (EBC)	25V		10V	1.0 μ A	20V	1k	2k	10mA 100mA	5V 5V	1.0V	100mA					500mA	D25

PNP Transistors

Electrical characteristics of each Part No. can be looked up from the data of DIE No.

■ General purpose small signal amplifiers

Part No.	Package	BV _{CBO} Min.	BV _{CEO} Min.	BV _{EBO} Min.	I _{CBO} Max.	h _{FE} @ I _c & V _{CE}				V _{CE(sat)} & V _{BE(sat)} @ I _c			C _{ob} Max.	f _T Min.	@ I _c	t _{off} /NF Max.	I _c Max.	DIE No.	
						Min.	Max.	Min.	Max.	Max.	Max.	Max.							
2N3703 MPS3703	TO-92 (ECB) (EBC)	50V	30V	5V	100nA	20V	30	150	50mA	5V	0.25V	1.0V	50mA	12pF	100MHz	50mA		200mA	A32
2N5086	TO-92 (EBC)	50V	50V	3V	100nA	40V	150	500	100 μA	5V	0.3V	0.85V	10mA	6pF	40MHz	0.5mA	NF 3dB	200mA	A32
2N5087	TO-92 (EBC)	50V	50V	3V	100nA	40V	250	800	100 μA	5V	0.3V	1.0mA	5V	6pF	40MHz	0.5mA	NF 2dB	200mA	A32
MPS-A70	TO-92 (EBC)	40V	40V	4V	100nA	30V	40	400	5mA	10V	0.25V	10mA		6pF	125MHz	5mA		100mA	A32

■ General purpose amplifiers and switches

Part No.	Package	BV _{CBO} Min.	BV _{CEO} Min.	BV _{EBO} Min.	I _{CBO} Max.	h _{FE} @ I _c & V _{CE}				V _{CE(sat)} & V _{BE(sat)} @ I _c			C _{ob} Max.	f _T Min.	@ I _c	t _{off} Max.	I _c Max.	DIE No.	
						Min.	Max.	Min.	Max.	Max.	Max.	Max.							
PN2907	TO-92 (EBC)	60V	40V	5V	100nA	50V	35	50	0.1mA	10V	0.4V	1.3V	150mA	8pF	200MHz	50mA	180ns	600mA	A31
PN2907A	TO-92 (EBC)	60V	60V	5V	100nA	50V	75	100	0.1mA	10V	0.4V	1.3V	150mA	8pF	200MHz	50mA	180ns	600mA	A31
2N3906	TO-92 (EBC)	40V	40V	5V	50nA (CES)	30V	60	80	0.1mA	1V	0.25V	0.85V	10mA	4.5pF	250MHz	10mA	300ns	200mA	A38
2N4125	TO-92 (EBC)	30V	30V	4V	50nA	20V	50	150	2mA	1V	0.4V	0.95V	50mA	4.5pF	200MHz	10mA		200mA	A38
2N4126	TO-92 (EBC)	25V	25V	4V	50nA	20V	120	360	2mA	1V	0.4V	0.95V	50mA	4.5pF	250MHz	10mA		200mA	A38
2N4403	TO-92 (EBC)	40V	40V	5V	100nA	35V	30	60	0.1mA	1V	0.4V	0.95V	150mA	8.5pF	200MHz	20mA	255ns	600mA	A31
2N6076	TO-92 (ECB)	25V	25V	5V	100nA (CES)	25V	100	500	10mA	10V	0.25V	0.85V	10mA	13pF	200MHz	Typ.	260ns	100mA	A31
MPS3638	TO-92 (EBC)	25V	(CES) 25V	4V	100nA (CES)	15V	20	30	10mA	10V	0.25V	1.1V	50mA	20pF	100MHz	50mA	170ns	500mA	A31
MPS3638A	TO-92 (EBC)	25V	(CES) 25V	4V	100nA (CES)	15V	80	100	1.0mA	10V	0.25V	1.1V	50mA	10pF	150MHz	50mA	170ns	500mA	A31
MPS4250	TO-92 (EBC)	40V	40V	5V	100nA	40V	250	700	0.1mA	5V	0.25V	10mA		6pF		NF 2.0dB	200mA	A32	
MPS6519	TO-92 (EBC)	40V	25V	4V	50nA	20V	250	500	2mA	10V	0.5V	50mA		6pF	200MHz	Typ.	NF 2.0dB	100mA	A32
MPS6534	TO-92 (EBC)	40V	40V	4V	100nA	30V	60	90	10mA	1V	0.5V	1.0V	100mA	8pF	260MHz	Typ.		600mA	A31

SPECIFICATION TABLES
BIPOLAR TRANSISTORS

U.S. European Type Series

PNP Transistors

Electrical characteristics of each Part No. can be looked up from the data of DIE No.

■ Medium power amplifiers

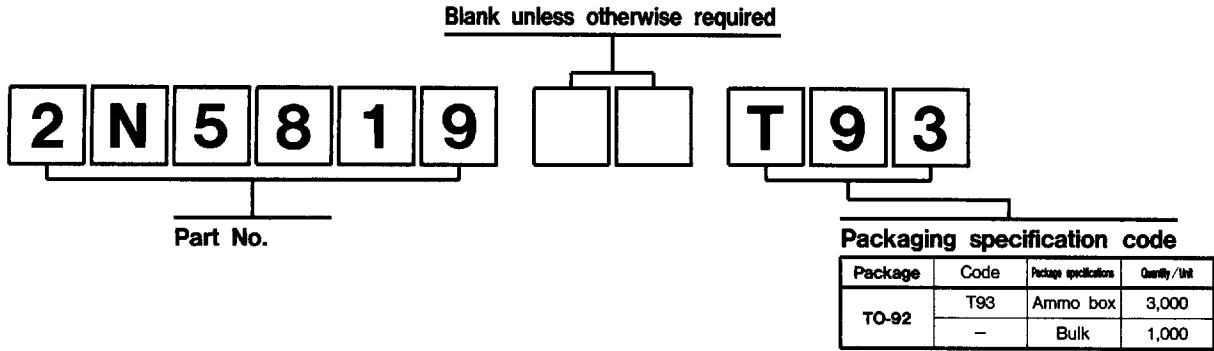
Part No.	Package	BV _{CBO} Min.	BV _{CEO} Min.	BV _{EBO} Min.	I _{CBO} Max.	@V _{CB}		h _{FE} Min. Max.	@I _C & V _{CE}		V _{CE(sat)} Max.	V _{BE(sat)} Max.	& @ I _C	C _{ob} Max.	f _T Min.	@ I _C	t _{off} Max.	I _C Max.	DIE No.
						I _{CBO}	V _{CB}		I _C	V _{CE}									
2N5819	TO-92 (EBC)	50V	40V	5V	100nA	25V	150 300	25	2mA 500mA	2V 2V	0.75V	1.2V	500mA	15pF	135MHz	50mA		750mA	A31
MPS4354	TO-92 (EBC)	60V	60V	5V	100nA	50V	25 40 50 40 30		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	B13
MPS6562	TO-92 (EBC)	25V	25V	5V	100nA	20V	35 50 50		10mA 100mA 500mA	1V 1V 3V	0.50V	1.2V	500mA	30pF	60MHz	10mA		500mA	B11
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	B13
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	B13

■ Darlington amplifiers

Part No.	Package	BV _{CBO} Min.	BV _{CEO} Min.	BV _{EBO} Min.	I _{CBO} 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} /NF	I _C Max.	DIE No.
						I _{CBO}	V _{CB}		I _C	V _{CE}									
MPS-A63	TO-92 (EBC)	30V	30V (CES)	10V	100nA	30V	5K 10K		10mA 100mA	5V 5V	1.5V		100mA	7pF	125MHz	10mA		500mA	B25
MPS-A64	TO-92 (EBC)	30V	30V (CES)	10V	100nA	30V	10K 20K		10mA 100mA	5V 5V	1.5V		100mA	7pF	125MHz	10mA		500mA	B25
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	B25

Ordering Information

Product designation consists of type No. and packaging specification code is needed for ordering information.



Packaging specifications

(Unit : mm)

