Small Signal Transistors

TO-92 Case

TO-92

TYPE NO.	FAMILY	LEAD CODE	V_{CBO} (V) MIN	V_{CEO} (V) *V_{CES} MIN	V_{EBO} (V) MIN	I_{CBO} @ V_{CBO} (nA) *I_{CES} **I_{CEV} MAX	(V)	h_{FE} MIN	*h_{fe}(1kHZ) MAX	@ V_{CE} (V)	@ I_C (mA)	$V_{CE(SAT)}$ @ I_C (V)	(mA)	C_{ob} (pF) *C_{rb} MAX	f_T (MHz) *TYP MIN	NF (dB) MAX	t_{off} MAX
2N2712	NPN AMPL/SWITCH	ECB	18	18	5.0	500	18	75	225	----	----	---	---	12		2.8	---
2N2714	NPN AMPL/SWITCH	ECB	18	18	5.0	100	18	75	225	0.30	50	1.20	50	---	---	---	---
2N2923	NPN LOW NOISE	ECB	25	25	5.0	100	25	90*	180*	---	---	---	---	10	160*	----	---
2N2924	NPN LOW NOISE	ECB	25	25	5.0	100	25	150*	300*	---	---	---	---	10	160*	----	---
2N2925	NPN LOW NOISE	ECB	25	25	5.0	100	25	235*	470*	---	---	---	---	10	160*	2.8	---
2N2926	NPN LOW NOISE	ECB	25	25	5.0	500	18	35*	470*	---	---	---	---	10	120*	2.8	---
2N3391A	NPN LOW NOISE	ECB	25	25	5.0	100	25	250	500	4.50	2.0	----	---	10	120*	5.0	---
2N3392	NPN LOW NOISE	ECB	25	25	5.0	100	25	150	300	4.50	2.0	----	---	10	120*	---	---
2N3393	NPN LOW NOISE	ECB	25	25	5.0	100	25	90	180	4.50	2.0	---	---	10	120*	---	---
2N3395	NPN LOW NOISE	ECB	25	25	5.0	100	25	150	500	4.50	2.0	---	---	10	---	---	---
2N3396	NPN LOW NOISE	ECB	25	25	5.0	100	25	90	500	4.50	2.0	---	---	10	---	---	---
2N3397	NPN LOW NOISE	ECB	25	25	5.0	100	25	55	500	4.50	2.0	---	---	10	---	---	---
2N3398	NPN LOW NOISE	ECB	25	25	5.0	100	25	55	800	4.50	2.0	---	---	10	---	---	---
2N3415	NPN LOW NOISE	ECB	25	25	5.0	100	25	180	540	4.50	2.0	0.30	50	---	---	---	---
2N3416	NPN LOW NOISE	ECB	50	50	5.0	100	25	75	225	4.50	2.0	0.30	50	---	---	---	---
2N3417	NPN LOW NOISE	ECB	50	50	5.0	100	50	180	540	4.50	2.0	0.30	50	---	---	---	---
2N3702	PNP AMPL/SWITCH	ECB	40	25	5.0	100	20	60	300	5.0	0.05	0.25	50	12	100	---	---
2N3703	PNP AMPL/SWITCH	ECB	50	30	5.0	100	20	30	150	5.0	0.05	0.25	50	12	100	----	----
2N3704	NPN AMPL/SWITCH	ECB	50	30	5.0	100	20	100	300	2.0	50	0.60	100	12	100	----	----
2N3705	NPN AMPL/SWITCH	ECB	50	30	5.0	100	20	50	150	2.0	50	0.80	100	12	100	----	----
2N3706	NPN AMPL/SWITCH	ECB	40	20	5.0	100	20	30	600	2.0	50	1.0	100	12	100	----	----
2N3707	NPN LOW NOISE	ECB	30	30	6.0	100	20	100	400	5.0	1.0	1.0	10	----	----	5.0	----
2N3708	NPN LOW NOISE	ECB	30	30	6.0	100	20	45	660	5.0	1.0	1.0	10	----	----	5.0	----
2N3709	NPN LOW NOISE	ECB	30	30	6.0	100	20	45	165	5.0	1.0	1.0	10	----	----	5.0	----
2N3710	NPN LOW NOISE	ECB	30	30	6.0	100	20	90	330	5.0	1.0	1.0	10	----	----	5.0	----
2N3711	NPN LOW NOISE	ECB	30	30	6.0	100	20	180	660	5.0	1.0	1.0	10	----	----	5.0	----
2N3859A	NPN LOW NOISE	ECB	60	60	6.0	50	60	100	200	4.50	2.0	0.125	10	4.0	----	5.0	----
2N3860	NPN LOW NOISE	ECB	30	30	4.0	50	30	150	300	4.50	2.0	0.125	10	4.0	90	----	----
2N3903	NPN AMPL/SWITCH	EBC	60	40	6.0	50**	30	50	150	1.0	10	0.30	50	4.0	250	6.0	225
2N3904	NPN AMPL/SWITCH	EBC	60	40	6.0	50**	30	100	300	1.0	10	0.30	50	4.0	300	5.0	250
2N3905	PNP AMPL/SWITCH	EBC	40	40	5.0	50**	30	50	150	1.0	10	0.40	50	4.5	200	5.0	260
2N3906	PN AMPL/SWITCH	EBC	40	40	5.0	50**	30	100	300	1.0	10	0.40	50	4.5	250	4.0	300
2N4058	PNP LOW NOISE	ECB	30	30	6.0	100	20	100	400	5.0	0.10	0.70	10	----	----	5.0	----
2N4123	NPN AMPL/SWITCH	EBC	40	30	5.0	50	20	50	150	1.0	2.0	0.30	50	4.0	250	6.0	---
2N4124	NPN AMPL/ SWITCH	EBC	30	25	5.0	50	20	120	360	1.0	2.0	0.30	50	4.0	300	5.0	---
2N4125	PNP AMPL/SWITCH	EBC	30	30	4.0	50	20	50	150	1.0	2.0	0.40	50	4.5	200	5.0	---
2N4126	PNP AMPL/SWITCH	EBC	25	25	4.0	50	20	120	360	1.0	2.0	0.40	50	4.5	250	4.0	---
2N4264	NPN SAT SWITCH	EBC	30	15	6.0	100**	12	40	160	1.0	10	0.35	100	4.0	350	----	35
2N4287	NPN LOW NOISE	ECB	45	45	7.0	10	30	150	600	5.0	1.0	0.35	1.0	6.0	40	5.0	----
2N4289	PNP LOW NOISE	ECB	60	45	7.0	10	45	150	600	0.35	1.0	0.80	1.0	8.0	40	4.0	----
2N4400	NPN AMPL/SWITCH	EBC	60	40	6.0	100*	35	50	150	1.0	150	0.75	500	6.5	200	---	255

Devices are available lead formed. See pages 217 and 218 for details.

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Small Signal Transistors

TO-92 Case (Continued)

TO-92

TO-92-18R

TYPE NO.	FAMILY	LEAD CODE	V_{CBO}	V_{CEO}	V_{EBO}	I_{CBO} @ V_{CBO}		h_{FE}		@ V_{CE}	@ I_C	$V_{CE(SAT)}$ @ I_C		C_{ob}	f_T	NF	t_{off}
			(V)	(V)	(V)	(nA)	(V)			(V)	(mA)	(V)	(mA)	(pF)	(MHz)		
		*TO-92-18R	MIN	*V_{CES} MIN	MIN	*I_{CES} **I_{CEV}		MIN	*h_{fe}(1kHZ) MAX					*C_{rb} MAX	*TYP MIN	MAX	MAX
2N4401	NPN AMPL/SWITCH	EBC	60	40	6.0	100*	35	100	300	1.0	150	0.75	500	6.5	250	---	255
2N4402	PNP AMPL/SWITCH	EBC	40	40	5.0	100*	35	50	150	2.0	150	0.75	500	8.5	150	---	255
2N4403	PNP AMPL/SWITCH	EBC	40	40	5.0	100*	35	100	300	2.0	150	0.75	500	8.5	200	---	255
2N4410	NPN LOW NOISE	EBC	120	80	5.0	10	100	60	400	1.0	10	0.20	1.0	12	60	---	---
2N4424	NPN LOW NOISE	ECB	60	40	5.0	30	40	180	540	0.45	0.30	50	----	----	----	----	----
2N4952	NPN AMPL/SWITCH	ECB	60	30	5.0	50	40	100	300	10	150	0.30	150	8.0	250	----	400
2N4953	NPN AMPL/SWITCH	ECB	60	30	5.0	50	40	200	600	10	150	0.30	150	8.0	250	----	400
2N5086	PNP LOW NOISE	EBC	50	50	3.0	10	10	150	500	5.0	0.10	0.30	10	4.0	40	3.0	---
2N5087	PNP LOW NOISE	EBC	50	50	3.0	10	10	250	800	5.0	0.10	0.30	10	4.0	40	2.0	---
2N5088	NPN LOW NOISE	EBC	35	30	4.5	50	20	300	900	5.0	0.10	0.50	10	4.0	50	3.0	---
2N5089	NPN LOW NOISE	EBC	30	25	4.5	50	15	400	1,200	5.0	0.10	0.50	10	4.0	50	2.0	---
2N5172	NPN LOW NOISE	ECB	25	25	5.0	100	25	100	500	10	10	0.25	10	13	200*	---	---
2N5209	NPN LOW NOISE	EBC	50	50	4.5	50	35	100	300	5.0	0.10	0.70	10	4.0	30	3.0	---
2N5210	NPN LOW NOISE	EBC	50	50	4.5	50	35	200	600	5.0	0.10	0.70	10	4.0	30	2.0	---
2N5223	NPN AMPL/SWITCH	EBC	25	20	3.0	100	10	50	800	0.70	10	1.20	10	4.0	150	----	----
2N5225	NPN AMPL/SWITCH	EBC	25	25	4.0	300	15	30	600	10	50	0.80	100	20	50	----	----
2N5226	PNP AMPL/SWITCH	EBC	25	25	4.0	300	15	30	600	10	50	0.80	100	8.0	50	----	----
2N5227	PN LOW NOISE	EBC	30	30	3.0	100	10	50	700	10	2.0	0.40	10	10	100	----	5.0
2N5232A	NPN LOW NOISE	ECB	70	50	5.0	30	50	250	500	5.0	2.0	0.125	10	4.0	----	5.0	----
2N5306	NPN DARLINGTON	ECB	25	25	12	100	25	7,000	70,000	5.0	2.0	1.40	200	10	60	----	----
2N5308	NPN DARLINGTON	ECB	40	40	12	100	40	7,000	70,000	5.0	2.0	1.40	200	10	60	----	----
2N5356	PNP AMPL/SWITCH	ECB	25	25	4.0	100	25	250	500	1.0	50	0.25	50	8.0	250*	----	----
2N5366	PN AMPL/SWITCH	ECB	40	40	4.0	100	40	100	300	1.0	50	0.25	50	8.0	250*	----	----
2N5367	PNP AMPL/SWITCH	ECB	40	40	4.0	100	40	250	500	1.0	50	0.25	50	8.0	250*	----	----
2N5374	PNP AMPL/SWITCH	CBE*	60	30	5.0	50	40	200	400	10	150	0.30	150	10	150	----	----
2N5375	PNP AMPL/SWITCH	CBE*	40	30	5.0	50	30	40	400	10	150	0.30	150	10	150	----	----
2N5376	NPN AMPL/SWITCH	CBE*	60	30	5.0	10	30	120	----	5.0	1.0	----	----	8.0	----	----	----
2N5377	NPN AMPL/SWITCH	CBE*	60	30	5.0	10	30	120	----	5.0	1.0	----	----	8.0	----	----	----
2N5381	NPN AMPL/SWITCH	CBE*	60	40	6.0	50	30	100	300	1.0	10	12	10	4.0	300	5.0	----
2N5383	PNP AMPL/SWITCH	CBE*	40	40	5.0	50	30	100	300	1.0	10	0.25	10	4.5	250	4.0	----
2N5400	PNP HIGH VOLTAGE	EBC	130	120	5.0	100	100	40	180	5.0	10	0.50	50	6.0	100	8.0	---
2N5401	PNP HIGH VOLTAGE	EBC	160	150	5.0	50	120	60	240	5.0	10	0.50	50	6.0	100	8.0	---
2N5447	PNP AMPL/SWITCH	CBE*	40	25	5.0	100	20	60	300	5.0	50	0.25	50	12	100	----	----
2N5550	NPN HIGH VOLTAGE	EBC	160	140	6.0	100	100	60	250	5.0	10	0.25	50	6.0	100	10	---
2N5551	NPN HIGH VOLTAGE	EBC	180	160	6.0	50	120	80	250	5.0	10	0.20	50	6.0	100	8.0	---
2N5769	NPN SAT SWITCH	EBC	40	15	4.5	400	20	40	120	0.35	10	0.50	100	4.0	500	----	18
2N5770	NPN RF OSC	EBC	30	15	3.0	10	15	50	200	1.0	8.0	0.40	10	1.1	800	---	---
2N5771	PNP SAT SWITCH	EBC	15	15	4.5	10	8.0	50	120	0.30	10	0.60	50	3.0	850	---	20
2N5772	NPN SAT SWITCH	EBC	40	15	5.0	500*	20	30	120	0.40	30	0.50	300	5.0	350	---	28
2N5810	NPN AMPL/SWITCH	CBE*	35	25	5.0	100	25	60	200	2.0	2.0	0.75	500	15	100	----	----
2N5811	PNP AMPL/SWITCH	CBE*	35	25	5.0	100	25	60	200	2.0	2.0	0.75	500	15	100	----	----

Shaded areas indicate Darlington.

Devices are available lead formed. See pages 217 and 218 for details.

Central™ Semiconductor Corp.

Small Signal Transistors

TO-92 Case (Continued)

TO-92

TO-92-18R

TYPE NO.	FAMILY	LEAD CODE	V_{CBO}	V_{CEO}	V_{EBO}	I_{CBO} @ V_{CBO}		h_{FE}		@ V_{CE}	@ I_C	$V_{CE(SAT)}$ @ I_C		C_{ob}	f_T	NF	t_{off}
			(V)	(V)	(V)	(nA)	(V)			(V)	(mA)	(V)	(mA)	(pF)	(MHz)	(dB)	
		*TO-92-18R	MIN	*V_{CES} MIN	MIN	*I_{CES} **I_{CEV}		MIN	*h_{fe}(1kHZ) MAX					*C_{rb} MAX	*TYP MIN	MAX	MAX
2N5812	NPN AMPL/SWITCH	CBE*	35	25	5.0	100	25	150	500	2.0	2.0	0.75	500	15	135	----	----
2N5813	PNP AMPL/SWITCH	CBE*	35	25	5.0	100	25	150	500	2.0	2.0	0.75	500	15	135	----	----
2N5816	NPN AMPL/SWITCH	CBE*	50	40	5.0	100	25	100	200	2.0	2.0	0.75	500	15	120	----	----
2N5817	PNP AMPL/SWITCH	CBE*	50	40	5.0	100	25	100	200	2.0	2.0	0.75	500	15	120	----	----
2N5818	NPN AMPL/SWITCH	CBE*	50	40	5.0	100	25	150	300	2.0	2.0	0.75	500	15	135	----	----
2N5819	PNP AMPL/SWITCH	CBE*	50	40	5.0	100	25	150	300	2.0	2.0	0.75	500	15	135	----	----
2N5822	NPN AMPL/SWITCH	CBE*	70	60	5.0	100	25	100	200	2.0	2.0	0.75	500	15	120	----	----
2N5823	PNP AMPL/SWITCH	CBE*	70	60	5.0	100	25	100	200	2.0	2.0	0.75	500	15	120	----	----
2N5830	NPN HIGH VOLTAGE	EBC	120	100	5.0	50	100	80	500	5.0	10	0.25	50	4.0	100	----	----
2N5831	NPN HIGH VOLTAGE	EBC	160	140	5.0	50	120	80	500	5.0	10	0.25	50	4.0	100	----	----
2N5961	NPN LOW NOISE	EBC	60	60	8.0	2.0	60	170	700	5.0	10	0.20	10	4.0	100	3.0	---
2N5962	NPN LOW NOISE	EBC	45	45	8.0	2.0	45	600	1,400	5.0	10	0.20	10	4.0	100	3.0	---
2N5963	NPN LOW NOISE	EBC	30	30	8.0	2.0	30	1,200	2,000	5.0	10	0.20	10	4.0	150	3.0	---
2N6076	PNP LOW NOISE	ECB	25	25	5.0	100	25	100	500	10	10	0.25	10	13	200*	---	---
2N6426	NPN DARLINGTON	EBC	40	40	12	50	30	20,000	200,000	5.0	500	1.50	500	7.0	150	10	---
2N6427	NPN DARLINGTON	EBC	40	40	12	50	30	14,000	140,000	5.0	500	1.50	500	7.0	130	10	---
2N6515	NPN HIGH VOLTAGE	EBC	250	250	6.0	50	150	45	220	10	50	1.0	50	6.0	40	---	---
2N6516	NPN HIGH VOLTAGE	EBC	300	300	6.0	50	200	40	200	10	50	1.0	50	6.0	40	---	---
2N6517	NPN HIGH VOLTAGE	EBC	350	350	6.0	50	250	20	100	10	50	1.0	50	6.0	40	---	---
2N6518	PNP HIGH VOLTAGE	EBC	250	250	5.0	50	150	45	220	10	50	1.0	50	6.0	40	---	---
2N6519	PNP HIGH VOLTAGE	EBC	300	300	5.0	50	200	40	200	10	50	1.0	50	6.0	40	---	---
2N6520	PNP HIGH VOLTAGE	EBC	350	350	5.0	50	250	20	100	10	50	1.0	50	6.0	40	---	---
BCX38A	NPN DARLINGTON	EBC	80	60	10	100	60	1,000	---	5.0	500	1.25	800	---	---	---	---
BCX38B	NPN DARLINGTON	EBC	80	60	10	100	60	4,000	---	5.0	500	1.25	800	---	---	---	---
BCX38C	NPN DARLINGTON	EBC	80	60	10	100	60	10,000	---	5.0	500	1.25	800	---	---	---	---
GES6014	NPN AMPL/SWITCH	EBC	70	60	5.0	10	25	100	300	1.0	10	0.50	500	10	105	5.0	400
MPS650	NPN HIGH CURRENT	EBC	60	40	5.0	100	60	40	----	2.0	2,000	0.50	2,000	----	75	----	----
MPS651	NPN HIGH CURRENT	EBC	80	60	5.0	100	80	40	----	2.0	2,000	0.50	2,000	----	75	----	----
MPS750	PNP HIGH CURRENT	EBC	60	40	5.0	100	60	40	----	2.0	2,000	0.50	2,000	----	75	----	----
MPS751	PNP HIGH CURRENT	EBC	80	60	5.0	100	80	40	----	2.0	2,000	0.50	2,000	----	75	----	----
MPS3392	NPN AMPL/SWITCH	EBC	25	25	5.0	100	18	150	300	4.5	2.0	----	----	10	----	----	----
MPS3395	NPN AMPL/SWITCH	EBC	25	25	5.0	100	18	150	500	4.5	2.0	----	----	10	----	----	----
MPS3396	NPN AMPL/SWITCH	EBC	25	25	5.0	100	18	90	500	4.5	2.0	----	----	10	----	----	----
MPS3397	NPN AMPL/SWITCH	EBC	25	25	5.0	100	18	55	500	4.5	2.0	----	----	10	----	----	----
MPS3398	NPN AMPL/SWITCH	EBC	25	25	5.0	100	18	55	800	4.5	2.0	----	----	10	----	----	----
MPS3415	NPN LOW NOISE	EBC	25	25	5.0	100	25	180	540	4.5	2.0	0.30	50	----	----	----	----
MPS3702	PNP AMPL/SWITCH	EBC	40	25	5.0	100	20	60	300	5.0	50	0.25	50	12	100	----	----
MPS3704	NPN AMPL/SWITCH	EBC	50	30	5.0	100	20	100	300	2.0	50	0.60	100	12	100	----	----
MPS3706	NPN AMPL/SWITCH	EBC	40	20	5.0	100	20	30	600	2.0	50	1.0	100	12	100	----	----
MPS3707	NPN LOW NOISE	EBC	30	30	6.0	100	20	100	400	5.0	0.10	1.0	10	4.0	----	5.0	----
MPS3708	NPN LOW NOISE	EBC	30	30	6.0	100	20	45	660	5.0	1.0	1.0	10	----	----	----	----

Shaded areas indicate Darlington.

Devices are available lead formed. See pages 217 and 218 for details.

Small Signal Transistors

TO-92 Case (Continued)

TO-92

TYPE NO.	FAMILY	LEAD CODE	V_{CBO} (V) MIN	V_{CEO} (V) *V_{CES} MIN	V_{EBO} (V) MIN	I_{CBO} @ V_{CBO} (nA) *I_{CES} **I_{CEV}	(V)	h_{FE} MIN	h_{fe}(1kHZ) MAX	@ V_{CE} (V)	@ I_C (mA)	$V_{CE(SAT)}$ @ I_C (V)	(mA)	C_{ob} (pF) *C_{rb} MAX	f_T (MHz) *TYP MIN	NF (dB) MAX	t_{off} MAX
MPS3710	NPN LOW NOISE	EBC	30	30	6.0	100	20	90	330	5.0	1.0	1.0	10	----	----	----	----
MPS3711	NPN LOW NOISE	EBC	30	30	6.0	100	20	180	660	1.0	1.0	1.0	10	----	----	----	----
MPS3721	NPN LOW NOISE	EBC	18	18	5.0	500	18	60	660	10	2.0	----	----	3.5	----	----	----
MPS3826	NPN AMPL/SWITCH	EBC	60	45	4.0	100	30	40	160	10	10	----	----	3.5	200	----	----
MPS3827	NPN AMPL/SWITCH	EBC	60	45	4.0	100	30	100	400	10	10	----	----	3.5	200	----	----
MPS5172	NPN LOW NOISE	EBC	25	25	5.0	100	25	100	500	10	10	0.25	10	10	120*	----	----
MPS5306	NPN DARLINGTON	EBC	25	25	12	100	25	7,000	70,000	5.0	2.0	1.40	200	10	60	----	----
MPS5308	NPN DARLINGTON	EBC	40	40	12	100	40	7,000	70,000	5.0	2.0	1.40	200	10	60	----	----
MPS6507	NPN RF OSC	EBC	30	20	3.0	50	15	25	----	10	2.0	----	----	2.5	700	----	----
MPS6511	NPN RF OSC	EBC	30	20	3.0	50	15	25	----	10	10	----	----	2.5	----	----	----
MPS6513	NPN AMPL/SWITCH	EBC	40	30	4.0	50	30	90	180	10	2.0	0.50	50	3.5	---	---	---
MPS6514	NPN AMPL/SWITCH	EBC	40	25	4.0	50	30	150	300	10	2.0	0.50	50	3.5	---	---	---
MPS6515	NPN AMPL/SWITCH	EBC	40	25	4.0	50	30	250	500	10	2.0	0.50	50	3.5	---	---	---
MPS6517	PNP AMPL/SWITCH	EBC	40	40	4.0	50	30	90	180	10	2.0	0.50	50	4.0	---	---	---
MPS6518	PNP AMPL/SWITCH	EBC	40	40	4.0	50	30	150	300	10	2.0	0.50	50	4.0	---	---	---
MPS6519	PNP AMPL/SWITCH	EBC	25	25	4.0	50	20	250	500	10	2.0	0.50	50	4.0	---	---	---
MPS6520	NPN LOW NOISE	EBC	40	25	4.0	50	30	200	400	10	2.0	0.50	50	3.5	---	3.0	---
MPS6521	NPN LOW NOISE	EBC	40	25	4.0	50	30	300	600	10	2.0	0.50	50	3.5	---	3.0	---
MPS6522	PNP LOW NOISE	EBC	25	25	4.0	50	20	200	400	10	2.0	0.50	50	3.5	---	3.0	---
MPS6523	PNP LOW NOISE	EBC	25	25	4.0	50	20	300	600	10	2.0	0.50	50	3.5	---	3.0	---
MPS6531	NPN AMPL/SWITCH	EBC	60	40	5.0	50	40	90	270	1.0	100	0.30	100	5.0	---	---	---
MPS6532	NPN AMPL/SWITCH	EBC	50	30	5.0	100	30	30	---	1.0	100	0.50	100	5.0	---	---	---
MPS6534	PNP AMPL/SWITCH	EBC	40	40	4.0	50	30	90	270	1.0	100	0.30	100	7.0	---	---	---
MPS6535	PNP AMPL/SWITCH	EBC	30	30	4.0	50	30	30	---	1.0	100	0.50	100	7.0	---	---	---
MPS6560	NPN AMPL/SWITCH	EBC	25	25	5.0	100	20	50	200	1.0	500	0.50	500	30	60	----	----
MPS6561	NPN AMPL/SWITCH	EBC	20	20	4.0	100	20	50	200	1.0	350	0.50	350	30	60	----	----
MPS6562	PNP AMPL/SWITCH	EBC	25	25	5.0	100	20	50	200	1.0	500	0.50	500	30	60	----	----
MPS6563	PNP AMPL/SWITCH	EBC	20	20	4.0	100	20	50	200	1.0	350	0.50	350	30	60	----	----
MPS6564	NPN AMPL/SWITCH	EBC	---	45	5.0	500	40	25	----	5.0	40	0.50	10	4.0	----	----	----
MPS6566	NPN AMPL/SWITCH	EBC	60	45	4.0	100	30	100	400	10	10	0.40	10	3.5	----	----	----
MPS8097	NPN LOW NOISE	EBC	60	40	6.0	30	40	250	5.0	0.10	----	----	----	4.0	----	2.0	----
MPS8098	NPN AMPL/SWITCH	EBC	60	60	6.0	100	60	100	300	5.0	1.0	0.30	100	6.0	150	----	----
MPS8099	NPN AMPL/SWITCH	EBC	80	80	6.0	100	80	100	300	5.0	1.0	0.30	100	6.0	150	----	----
MPS8598	PNP AMPL/SWITCH	EBC	60	60	5.0	100	60	100	300	5.0	1.0	0.30	100	8.0	150	----	----
MPS8599	PNP AMPL/SWITCH	EBC	80	80	5.0	100	80	100	300	5.0	1.0	0.30	100	8.0	150	----	----
MPSA05	NPN AMPL/SWITCH	EBC	60	60	4.0	100	60	50	---	1.0	100	0.25	100	---	100	---	---
MPSA06	NPN AMPL/SWITCH	EBC	80	80	4.0	100	80	50	---	1.0	100	0.25	100	---	100	---	---
MPSA13	NPN DARLINGTON	EBC	30	30*	10	100	30	10,000	---	5.0	100	1.50	100	---	125	---	---
MPSA14	NPN DARLINGTON	EBC	30	30*	10	100	30	20,000	---	5.0	100	1.50	100	---	125	---	---
MPSA18	NPN LOW NOISE	EBC	45	45	6.5	50	30	500	1,500	5.0	10	----	----	3.0	100	1.5	----
MPSA20	NPN AMPL/SWITCH	EBC	---	40	4.0	100	30	40	400	10	5.0	0.25	10	4.0	125	---	---

Shaded areas indicate Darlington.
Devices are available lead formed. See pages 217 and 218 for details.

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Small Signal Transistors

TO-92 Case (Continued)

TO-92

TYPE NO.	FAMILY	LEAD CODE	V_{CBO} (V) MIN	V_{CEO} (V) *V_{CES} MIN	V_{EBO} (V) MIN	I_{CBO} @ V_{CBO} (nA) *I_{CES} **I_{CEV}	(V)	h_{FE} MIN	*h_{fe}(1kHZ) MAX	@ V_{CE} (V)	@ I_C (mA)	$V_{CE(SAT)}$ @ I_C (V)	(mA)	C_{ob} (pF) *C_{rb} MAX	f_T (MHz) *TYP MIN	NF (dB) MAX	t_{off} MAX
MPSA25	NPN DARLINGTON	EBC	40	40*	10	100	30	10,000	---	5.0	100	1.50	100	125	---	---	---
MPSA26	NPN DARLINGTON	EBC	50	50*	10	100	40	10,000	---	5.0	100	1.50	100	125	---	---	---
MPSA27	NPN DARLINGTON	EBC	60	50*	10	100	50	10,000	---	5.0	100	1.50	100	125	---	---	---
MPSA28	NPN DARLINGTON	EBC	80	80*	12	100	60	10,000	----	5.0	100	1.50	100	8.0	125	----	----
MPSA29	NPN DARLINGTON	EBC	100	100	12	100	80	10,000	----	5.0	100	1.50	100	8.0	125	----	----
MPSA42	NPN HIGH VOLTAGE	EBC	300	300	6.0	100	200	40	---	10	30	0.50	20	3.0	50	---	---
MPSA44	NPN HIGH VOLTAGE	EBC	500	400	6.0	100	400	50	200	10	10	0.75	50	6.0	20	---	---
MPSA45	NPN HIGH VOLTAGE	EBC	400	350	6.0	100	320	50	200	10	10	0.75	50	6.0	20	---	---
MPSA55	PN AMPL/SWITCH	EBC	60	60	4.0	100	60	50	----	1.0	100	0.25	100	---	50	---	---
MPSA56	PNP AMPL/SWITCH	EBC	80	80	4.0	100	80	50	---	1.0	100	0.25	100	---	50	---	---
MPSA62	PNP DARLINGTON	EBC	20	20*	10	100	15	20,000	---	5.0	10	1.0	10	---	125	---	---
MPSA63	PNP DARLINGTON	EBC	30	30*	10	100	30	10,000	---	5.0	100	1.50	100	---	125	---	---
MPSA64	PNP DARLINGTON	EBC	30	30*	10	100	30	20,000	---	5.0	100	1.50	100	---	125	---	---
MPSA65	PNP DARLINGTON	EBC	30	30*	8.0	100	30	20,000	---	5.0	100	1.50	100	---	100	---	---
MPSA66	PNP DARLINGTON	EBC	30	30*	8.0	100	30	40,000	---	5.0	100	1.50	100	---	100	---	---
MPSA70	PNP LOW NOISE	EBC	---	40	4.0	100	30	40	400	10	5.0	0.25	10	4.0	125	---	---
MPSA75	PNP DARLINGTON	EBC	40	40*	10	100	30	10,000	---	5.0	100	1.50	100	---	125	---	---
MPSA76	PNP DARLINGTON	EBC	50	50*	10	100	40	10,000	---	5.0	100	1.50	100	---	125	---	---
MPSA77	PNP DARLINGTON	EBC	60	60*	10	100	50	10,000	---	5.0	100	1.50	100	---	125	---	---
MPSA92	PNP HIGH VOLTAGE	EBC	300	300	5.0	250	200	25	---	10	30	0.5	20	6.0	50	---	---
MPSD04	NPN DARLINGTON	EBC	---	25*	10	1,000	20	1,000	---	5.0	300	1.0	100	---	100	---	---
MPSD54	PNP DARLINGTON	EBC	---	25*	10	1,000	20	1,000	---	5.0	100	1.0	100	---	100	---	---
MPSH10	NPN RF OSC	BEC	30	25	3.0	100	25	60	---	10	4.0	0.50	4.0	0.65*	650	---	---
MPSH11	NPN RF OSC	BEC	30	25	3.0	100	25	60	---	10	4.0	0.50	4.0	0.90*	650	---	---
MPSL01	NPN HIGH VOLTAGE	EBC	140	120	5.0	1,000	75	50	300	5.0	10	0.30	50	8.0	60	---	---
MPSL51	PNP HIGH VOLTAGE	EBC	100	100	4.0	1,000	50	40	250	5.0	50	0.30	50	8.0	60	---	---
PN918	NPN RF OSC	EBC	30	15	3.0	10	15	20	---	1.0	3.0	0.40	10	1.7	600	6.0	---
PN2222A	NPN AMPL/SWITCH	EBC	75	40	6.0	10	60	100	300	10	150	1.0	500	8.0	300	4.0	285
PN2369A	NPN SAT SWITCH	EBC	40	15	4.5	400	20	40	120	0.35	10	0.50	100	4.0	500	---	18
PN2484	NPN LOW NOISE	EBC	60	60	6.0	10	45	250	----	5.0	1.0	0.30	1.0	6.0	----	3.0	----
PN2907A	PNP AMPL/SWITCH	EBC	60	60	5.0	10	50	100	300	10	150	1.60	500	8.0	200	---	100
PN3563	NPN RF OSC	EBC	30	12	2.0	50	15	20	200	10	8.0	----	---	1.7	600	---	---
PN3564	NPN RF OSC	EBC	30	15	4.0	50	15	20	200	10	15	0.30	20	3.5	400	---	---
PN3565	NPN LOW NOISE	EBC	30	25	6.0	50	25	150	600	10	1.0	0.35	1.0	4.0	40	---	---
PN3566	NPN AMPL/SWITCH	EBC	40	30	5.0	50	20	150	600	10	10	1.0	100	25	40	---	---
PN3567	NPN AMPL/SWITCH	EBC	80	40	5.0	50	40	40	120	1.0	150	0.25	150	20	60	---	---
PN3568	NPN AMPL/SWITCH	EBC	80	60	5.0	50	40	40	120	1.0	150	0.25	150	20	60	---	----
PN3569	NPN AMPL/SWITCH	EBC	80	40	5.0	50	40	100	300	1.0	150	0.25	150	20	60	---	---
PN3638A	PNP AMPL/SWITCH	EBC	25	25	4.0	35*	15	100	---	1.0	50	1.0	300	10	150	---	170
PN3639	PNP SAT SWITCH	EBC	6.0	6.0	4.0	10*	3.0	30	120	0.30	10	0.50	50	3.5	500	---	60
PN3640	PNP SAT SWITCH	EBC	12	12	4.0	10*	6.0	30	120	0.30	10	0.60	50	3.5	500	---	75

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Devices are available lead formed. See pages 217 and 218 for details.

Small Signal Transistors

TO-92 Case (Continued)

TO-92

TYPE NO.	FAMILY	LEAD CODE	V_{CBO} (V) MIN	V_{CEO} (V) *V_{CES} MIN	V_{EBO} (V) MIN	I_{CBO} @ V_{CBO} (nA) *I_{CES} **I_{CEV}	(V)	h_{FE} MIN	h_{FE} (1kHZ) MAX	@ V_{CE} (V)	@ I_C (mA)	$V_{CE(SAT)}$ @ I_C (V)	(mA)	C_{ob} (pF) *C_{rb} MAX	f_T (MHz) *TYP MIN	NF (dB) MAX	t_{off} MAX
PN3641	NPN AMPL/SWITCH	EBC	60	30	5.0	50*	50	40	120	10	150	0.22	150	8.0	150	---	150
PN3642	NPN AMPL/SWITCH	EBC	60	45	5.0	50*	50	40	120	10	150	0.22	150	8.0	150	---	150
PN3643	NPN AMPL/SWITCH	EBC	60	30	5.0	50*	50	100	300	10	150	0.22	150	8.0	250	---	150
PN3644	PNP AMPL/SWITCH	EBC	45	45	5.0	35*	30	100	300	10	150	1.0	300	8.0	200	----	100
PN3645	PNP AMPL/SWITCH	EBC	60	60	5.0	35*	50	100	300	10	150	1.0	300	8.0	200	----	100
PN3646	NPN SAT SWITCH	EBC	40	15	5.0	500*	20	30	120	0.40	30	0.50	300	5.0	350	---	28
PN3694	NPN AMPL/SWITCH	EBC	45	45	4.0	50	30	100	400	10	10	----	----	6.0	200	---	----
PN4249	PNP LOW NOISE	EBC	60	60	5.0	10	40	100	300	5.0	0.10	0.25	10	6.0	40	3.0	---
PN4250A	PNP LOW NOISE	EBC	60	60	5.0	10	50	250	700	5.0	0.10	0.25	10	6.0	50	2.0	---
PN4258	PNP SAT SWITCH	EBC	12	12	4.5	10*	6.0	30	120	3.0	10	0.50	50	3.0	700	---	20
PN4274	NPN SAT SWITCH	EBC	30	12	4.5	400*	20	35	120	1.0	10	0.50	100	4.0	400	---	12
PN4275	NPN SAT SWITCH	EBC	40	15	4.5	400*	20	35	120	1.0	10	0.50	100	4.0	400	---	12
PN4354	PNP AMPL/SWITCH	EBC	60	60	5.0	50	50	50	500	10	10	0.50	500	30	100	3.0	400
PN4355	PNP AMPL/SWITCH	EBC	60	60	5.0	50	50	100	400	10	10	1.0	1,000	30	100	3.0	400
PN4356	PNP AMPL/SWITCH	EBC	80	80	5.0	50	50	50	250	10	10	0.50	500	30	100	3.0	400
PN4916	PNP AMPL/SWITCH	EBC	30	30	5.0	25	15	70	200	1.0	10	0.30	50	4.5	400	4.0	----
PN4917	PNP AMPL/SWITCH	EBC	30	30	5.0	25	15	150	300	1.0	10	0.30	50	4.5	450	4.0	----
PN5127	NPN AMPL/SWITCH	EBC	20	12	3.0	50	10	15	300	10	2.0	0.30	10	3.5	150	----	----
PN5128	NPN AMPL/SWITCH	EBC	15	12	3.0	50	10	35	350	10	50	0.25	150	10	150	----	----
PN5129	NPN AMPL/SWITCH	EBC	15	12	3.0	50	10	35	350	10	50	0.25	150	10	---	----	----
PN5130	NPN RF OSC	EBC	30	12	1.0	50	10	15	250	10	8.0	0.60	10	1.7	----	400	----
PN5131	NPN AMPL/SWITCH	EBC	20	15	3.0	50	10	30	50	1.0	10	1.0	10	6.0	100	----	----
PN5132	NPN AMPL/SWITCH	EBC	20	20	3.0	50	10	30	400	10	10	2.0	10	3.5	200	4.0	----
PN5133	NPN LOW NOISE	EBC	20	18	3.0	50	15	60	1,000	5.0	1.0	0.40	1.0	5.0	40	----	----
PN5134	NPN SAT SWITCH	EBC	20	10	3.5	10,000	15	20	150	1.0	10	0.25	10	4.0	250	----	18
PN5135	NPN AMPL/SWITCH	EBC	30	25	4.0	300	15	50	600	10	10	1.0	100	25	40	----	----
PN5136	NPN AMPL/SWITCH	EBC	30	20	3.0	100	20	20	400	1.0	150	0.25	150	35	40	----	----
PN5137	NPN AMPL/SWITCH	EBC	30	20	3.0	100	20	20	400	1.0	150	0.25	150	35	40	----	----
PN5138	PNP AMPL/SWITCH	EBC	30	30	5.0	50	20	50	800	10	0.10	0.30	10	7.0	30	----	----
PN5139	PNP AMPL/SWITCH	EBC	20	20	5.0	50*	15	40	----	1.0	10	0.50	50	5.0	300	----	200
PN5142	PNP AMPL/SWITCH	EBC	20	20	4.0	50*	12	30	----	1.0	50	2.0	300	10	----	----	200
PN5143	PNP AMPL/SWITCH	EBC	20	20	4.0	50*	12	30	----	1.0	50	2.0	300	10	----	----	200
PN5825	NPN AMPL/SWITCH	EBC	50	40	5.0	50	40	100	200	5.0	2.0	0.125	10	4.0	90	----	----
PN5826	NPN AMPL/SWITCH	EBC	50	40	5.0	50	40	150	300	5.0	2.0	0.125	10	4.0	90	----	----
PN5827	NPN AMPL/SWITCH	EBC	50	40	5.0	50	40	250	500	5.0	2.0	0.125	10	4.0	90	----	----
PN5828	NPN AMPL/SWITCH	EBC	50	40	5.0	50	40	400	800	5.0	2.0	0.125	10	4.0	90	----	----
PN5910	PNP SAT SWITCH	EBC	20	20	4.5	10*	10	30	120	0.30	10	0.50	50	3.0	700	---	20
PN6010	NPN AMPL/SWITCH	EBC	50	40	5.0	10	25	100	300	1.0	10	0.50	500	10	105	5.0	400

Shaded areas indicate Darlington.

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