




Small Signal Transistors

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General Purpose Amplifiers/Switches













FAMILY	I _C	BV _{CBO}	BV _{CEO}	BV _{EBO}	I _{CBO}	@ V _{CB}	h _{FE}		@ V _{CE}	@ I _C	V _{CE(SAT)}	@ I _C	C _{Ob}	f _T	NF	t _{off}			
	(A) MAX	(V) MIN	(V) MIN	(V) MIN	* I _{CEV} (nA) MAX	@ V _{CE} (V)	MIN	MAX	(V)	(mA)	(V) MAX	(mA)	(pF) MAX	(MHz) MIN	(dB) MAX	(ns) MAX			
 Devices are listed in order of descending breakdown voltage.																			
E>	NPN	2222AE	0.6	100	45	6.0	10	60	100	300	10	150	0.5	500	8.0	300	4.0	285	
		8099	0.5	80	80	6.0	100	80	100	300	5.0	1.0	0.4	100	6.0	150	-	-	
		2222A	0.6	75	40	6.0	10	60	100	300	10	150	1.0	500	8.0	300	4.0	285	
E>	NPN	3904E	0.2	60	40	6.0	50*	30	100	300	1.0	10	0.2	50	4.0	300	4.0	250	
		3904	0.2	60	40	6.0	50*	30	100	300	1.0	10	0.3	50	4.0	300	5.0	250	
		3920	0.2	60	50	7.0	100	60	120	560	6.0	1.0	0.4	50	3.5	300	-	-	
		4401	0.6	60	40	6.0	100*	35	100	300	1.0	150	0.75	500	6.5	250	-	255	
E>	PNP	2907AE	0.6	90	60	5.0	10	50	100	300	10	150	0.7	500	8.0	200	-	100	
		8599	0.5	80	80	5.0	100	80	100	300	5.0	1.0	0.4	100	4.5	150	-	-	
		2907A	0.6	60	60	5.0	10	50	100	300	10	150	1.6	500	8.0	200	-	100	
E>	PNP	3906E	0.2	60	40	6.0	50*	30	100	300	1.0	10	0.2	50	4.0	300	4.0	250	
		3906	0.2	40	40	5.0	50*	30	100	300	1.0	10	0.4	50	4.5	250	4.0	300	
		4403	0.6	40	40	5.0	100*	35	100	300	2.0	150	0.75	500	8.5	200	-	255	
E>	NPN & PNP	2222A (NPN)	0.6	75	40	6.0	10	60	100	300	10	150	1.0	500	8.0	300	4.0	285	
		+	2907A (PNP)	0.6	60	60	5.0	10	50	100	300	10	150	1.6	500	8.0	200	-	100
		3904E (NPN)	0.2	60	40	6.0	50*	30	100	300	1.0	10	0.2	50	4.0	300	4.0	250	
		+	3906E (PNP)	0.2	60	40	6.0	50*	30	100	300	1.0	10	0.2	50	4.0	300	4.0	250
		3904 (NPN)	0.2	60	40	6.0	50*	30	100	300	1.0	10	0.3	50	4.0	300	5.0	250	
		+	3906 (PNP)	0.2	40	40	5.0	50*	30	100	300	1.0	10	0.4	50	4.5	250	4.0	300
		4401 (NPN)	0.6	60	40	6.0	100*	35	100	300	1.0	150	0.75	500	6.5	250	-	255	
		+	4403 (PNP)	0.6	40	40	5.0	100*	35	100	300	2.0	150	0.75	500	8.5	200	-	255

 Indicates Enhanced Specification Device. Enhanced Spec in Red and Bold  Indicates Sorted Columns.





Package dimensions shown are maximum values in mm.


FAMILY	TLM322S  2.05 x 2.05 x 0.6	SOT-923  1.10 x 0.65 x 0.41	SOT-953  1.05 x 1.05 x 0.5	SOT-883L  1.05 x 0.65 x 0.4	SOT-523  1.7 x 1.7 x 0.78	SOT-563  1.7 x 1.7 x 0.6	SOT-323  2.2 x 2.2 x 1.1	SOT-363  2.2 x 2.3 x 1.1	SOT-23  3.05 x 2.49 x 1.09	SOT-26  3.0 x 3.0 x 1.2	SOT-89  4.7 x 4.5 x 1.7	SOT-223  6.7 x 7.3 x 1.8
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2222AE									CMPT2222AE			
8099	CTLT8099-M322S					CMLT8099 (2x) CMLT8099M (2x Matched)			CMPT8099			
2222A					CMUT2222A	CMLT2222A (2x)	CMST2222A	CMKT2222A (2x)	CMPT2222A	CMXT2222A (2x)	CXT2222A	CZT2222A
3904E		CMBT3904E	CMNT3904E	CET3904E		CMLT3904E (2x)			CMPT3904E			
3904					CMUT3904		CMST3904	CMKT3904 (2x)	CMPT3904	CMXT3904 (2x)	CXT3904	CZT3904
3920								CMKT3920 (2x)				
4401					CMUT4401				CMPT4401			
2907AE									CMPT2907AE			
8599									CMPT8599			
2907A					CMUT2907A	CMLT2907A (2x)	CMST2907A	CMKT2907A (2x)	CMPT2907A	CMXT2907A (2x)	CXT2907A	CZT2907A
3906E		CMBT3906E	CMNT3906E	CET3906E		CMLT3906E (2x)			CMPT3906E			
3906					CMUT3906		CMST3906	CMKT3906 (2x)	CMPT3906	CMXT3906 (2x)	CXT3906	CZT3906
4403					CMUT4403				CMPT4403			
2222A (NPN)												
2907A (PNP)	+					CMLT2207 (2x)		CMKT2207 (2x)		CMXT2207 (2x)		
3904E (NPN)												
3906E (PNP)	+					CMLT3946E (2x)						
3904 (NPN)												
3906 (PNP)	+							CMKT3946 (2x)		CMXT3946 (2x)		
4401 (NPN)												
4403 (PNP)	+					CMLT4413 (2x)						


(2x) under part number indicates two devices in one package.
 (4x) under part number indicates four devices in one package.



Low Noise Amplifiers

	FAMILY	I _C	BV _{CBO}	BV _{CEO}	BV _{EBO}	I _{CBO}	@ V _{CB}	h _{FE}		@ V _{CE}	@ I _C	V _{CE(SAT)}	@ I _C	C _{ob}	f _T	NF	t _{off}	
		(A) MAX	(V) MIN	(V) MIN	(V) MIN	(nA) MAX	(V)	MIN	MAX	(V)	(mA)	(V) MAX	(mA)	†TYP (pF) MAX	†TYP (MHz) MIN	(dB) MAX	(ns) MAX	
Devices are listed in order of ascending NF. 																		
E	NPN	5089	0.05	30	25	4.5	50	15	400	1,200	5.0	0.1	0.5	10	4.0	50	2.0	-
		930	0.03	45	45	5.0	10	45	100	300	5.0	0.01	1.0	10	8.0	30	3.0	-
		2484	0.05	60	60	6.0	10	45	250	-	5.0	1.0	0.35	1.0	6.0	-	3.0	-
		5088	0.05	35	30	4.5	50	20	300	900	5.0	0.1	0.5	10	4.0	50	3.0	-
		5088E	0.1	50	50	5.0	50	20	300	900	5.0	0.1	0.1	10	4.0	100	3.0	-
		6428	0.2	60	50	6.0	10	30	250	650	5.0	0.1	0.6	100	3.0	100	-	-
		6429	0.2	55	45	6.0	10	30	500	1,250	5.0	0.1	0.6	100	3.0	100	-	-
E	PNP	5087	0.05	50	50	3.0	50	35	250	800	5.0	0.1	0.3	10	4.0	40	2.0	-
		5087E	0.1	50	50	5.0	50	20	300	900	5.0	0.1	0.1	10	4.0	100	3.0	-
		5086	0.05	50	50	3.0	50	35	150	500	5.0	0.1	0.3	10	4.0	40	3.0	-
		992	0.05	110	110	5.0	-	-	200	800	6.0	1.0	0.3	10	3.0	50	3.0	-
E	NPN & PNP	5088E (NPN) +	0.1	50	50	5.0	50	20	300	900	5.0	0.1	0.1	10	4.0	100	3.0	-
		5087E (PNP)	0.1	50	50	5.0	50	20	300	900	5.0	0.1	0.1	10	4.0	100	3.0	-
		5088 (NPN) +	0.05	35	30	4.5	50	20	300	900	5.0	0.1	0.5	10	4.0	50	3.0	-
		5087 (PNP)	0.05	50	50	3.0	50	35	250	800	5.0	0.1	0.3	10	4.0	40	2.0	-

High Current

 Devices are listed in order of descending breakdown voltage.











E	NPN	853	6.0	200	100	6.0	10	150	100	300	2.0	2,000	0.05	100	38†	190†	-	-
		3019	0.5	120	80	7.0	10	90	100	300	10	150	0.5	500	12	100	4.0	-
		A06	0.5	80	80	4.0	100	80	100	-	1.0	100	0.25	100	-	100	-	-
		491E	1.0	80	60	5.0	100	60	200	600	5.0	500	0.2	500	10	150	-	-
		651	2.0	80	60	5.0	100	80	75	-	2.0	500	0.5	2,000	-	75	-	-
		3410	1.0	40	25	6.0	100	40	100	300	1.0	100	0.45	1,000	10	100	-	-
		68	0.8	25	20	5.0	100	25	85	375	1.0	500	0.5	1,000	-	65	-	-
E	PNP	953	5.0	140	100	6.0	50	100	100	300	1.0	1,000	0.05	100	45†	150†	-	-
		4033	0.5	80	80	5.0	50	60	100	300	5.0	100	0.5	500	20	100	-	-
		A56	0.5	80	80	4.0	100	80	100	-	1.0	100	0.25	100	-	50	-	-
		591E	1.0	80	60	5.0	100	60	200	600	5.0	500	0.2	500	10	150	-	-
		751	2.0	80	60	5.0	100	80	75	-	2.0	500	0.5	2,000	-	75	-	-
		7410	1.0	40	25	6.0	100	40	100	300	1.0	100	0.45	1,000	15	100	-	-
		69	1.0	25	20	5.0	100	25	85	375	1.0	500	0.5	1,000	-	65	-	-
	NPN & PNP	3410 (NPN) +	1.0	40	25	6.0	100	40	100	300	1.0	100	0.45	1,000	10	100	-	-
		7410 (PNP)	1.0	40	25	6.0	100	40	100	300	1.0	100	0.45	1,000	15	100	-	-

 Indicates Enhanced Specification Device. Enhanced Spec in Red and Bold  Indicates Sorted Columns.



Tiny Leadless Module™

Package dimensions shown are maximum values in mm.

FAMILY	TLM621  2.15 x 1.15 x 0.8	TLM832D  3.1 x 2.1 x 1.0	TLM833S  3.15 x 3.15 x 1.0	SOT-523  1.7 x 1.7 x 0.78	SOT-563  1.7 x 1.7 x 0.6	SOT-323  2.2 x 2.2 x 1.1	SOT-363  2.2 x 2.3 x 1.1	SOT-23  3.05 x 2.49 x 1.09	SOT-89  4.7 x 4.5 x 1.7	SOT-223  6.7 x 7.3 x 1.8
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5089								CMKT5089M10 (2x Matched)	CMPT5089		
930									CMPT930		
2484									CMPT2484		
5088								CMKT5088 (2x)	CMPT5088		
5088E				CMUT5088E	CMLT5088E (2x) CMLT5088EM (2x Matched)				CMPT5088E		
6428									CMPT6428		
6429									CMPT6429		
5087								CMKT5087 (2x)	CMPT5087		
5087E				CMUT5087E	CMLT5087E (2x) CMLT5087EM (2x Matched)			CMKT5087E (2x)	CMPT5087E		
5086									CMPT5086		
992									CMPT992		
5088E (NPN) + 5087E (PNP)					CMLT5078E (2x)						
5088 (NPN) + 5087 (PNP)								CMKT5078 (2x)			

853			CTLT853-M833S						CXT853	CZT853	
3019									CMPT3019	CXT3019	CZT3019
A06									CMPTA06		
491E					CMLT491E				CMPT491E	CXT491E	
651											CZT651
3410	CTLT3410-M621	CTLM3410-M832D (2x)		CMUT3410	CMLT3410 (2x)	CMST3410			CMPT3410	CXT3410	
68										CBCX68	CBCP68
953			CTLT953-M833S							CXT953	CZT953
4033									CMPT4033	CXT4033	CZT4033
A56									CMPTA56		
591E					CMLT591E				CMPT591E	CXT591E	
751											CZT751
7410	CTLT7410-M621	CTLM7410-M832D (2x)		CMUT7410	CMLT7410 (2x)	CMST7410			CMPT7410	CXT7410	
69										CBCX69	CBCP69
3410 (NPN) + 7410 (PNP)		CTLM3474-M832D (2x)			CMLT3474 (2x)						

(2x) under part number indicates two devices in one package.
(4x) under part number indicates four devices in one package.

RF Oscillator

FAMILY	I _C	BV _{CBO}	BV _{CEO}	BV _{EBO}	I _{CBO}	@ V _{CB}	h _{FE}		@ V _{CE}	@ I _C	V _{CE(SAT)}	@ I _C	C _{Ob}	f _T	NF	t _{off}	
	(A) MAX	(V) MIN	*BV _{CES} (V) MIN	(V) MIN	(nA) MAX	(V)	MIN	MAX	(V)	(mA)	(V) MAX	(mA)	(pF) MAX	(MHz) MIN	(dB) MAX	(ns) MAX	
Devices are listed in order of descending f _T .																	
NPN	5179	0.05	20	12	2.5	20	15	25	–	1.0	3.0	0.4	10	1.0	900	4.5	–
	H10	0.05	30	25	3.0	100	25	60	–	10	4.0	0.5	4.0	0.7	650	–	–
	918	0.05	30	15	3.0	10	15	20	–	1.0	3.0	0.4	10	1.7	600	6.0	–
PNP	H81	0.05	20	20	3.0	100	10	60	–	10	5.0	0.5	5.0	0.85	600	–	–

High Voltage

Devices are listed in order of descending breakdown voltage.

E>	NPN	A46	0.5	450	450	6.0	100	400	50	200	10	10	0.5	50	7.0	20	–	–
		A44	0.3	450	400	6.0	100	400	50	200	10	10	0.75	50	7.0	20	–	–
		6517	0.5	350	350	5.0	50	250	30	200	10	30	1.0	50	–	40	–	–
		A42E	0.5	350	350	6.0	250	200	50	–	10	30	0.35	50	6.0	50	–	–
		A42	0.5	300	300	6.0	100	200	40	–	10	30	0.5	20	3.0	50	–	–
		5551E	0.6	250	220	6.0	50	120	120	300	5.0	10	0.1	50	6.0	100	8.0	–
		5551	0.6	180	160	6.0	50	120	80	250	5.0	10	0.2	50	6.0	100	8.0	–
		5551HC	1.0	180	160	6.0	50	120	80	250	5.0	10	0.2	50	15	100	–	–
E>	PNP	A96	0.5	450	450	6.0	100	400	50	200	10	10	0.5	50	7.0	20	–	–
		A94	0.3	400	400	6.0	100	350	50	200	10	10	0.75	50	7.0	20	–	–
		6520	0.5	350	350	5.0	50	250	30	200	10	30	1.0	50	–	40	–	–
		A92E	0.5	350	350	6.0	250	200	50	–	10	30	0.35	50	6.0	50	–	–
		A92	0.5	300	300	5.0	250	200	25	–	10	30	0.5	20	6.0	50	–	–
		5401E	0.6	250	220	7.0	50	120	100	300	5.0	10	0.15	50	6.0	100	8.0	–
		5401	0.6	160	150	5.0	50	100	60	240	5.0	10	0.5	50	6.0	100	8.0	–
NPN & PNP	5551 (NPN) +	0.6	180	160	6.0	50	120	80	250	5.0	10	0.2	50	6.0	100	8.0	–	
	5401 (PNP)	0.6	160	150	5.0	50	120	60	240	5.0	10	0.5	50	6.0	100	8.0	–	

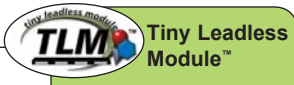
Saturated Switches

Devices are listed in order of descending f_T.







NPN	2369	0.5	40	15	4.5	400	20	40	120	1.0	10	0.25	10	4.0	500	–	18
	3646	0.2	40	15	5.0	500*	20	15	–	1.0	300	0.5	300	5.0	350	–	28
PNP	3640	0.08	12	12	4.0	10*	6.0	30	120	0.3	10	0.6	50	3.5	500	–	35

E> Indicates Enhanced Specification Device. Enhanced Spec in Red and Bold

S Indicates Sorted Columns.



Package dimensions shown are maximum values in mm.

FAMILY	TLM832D  3.1 x 2.1 x 1.0	SOT-523  1.7 x 1.7 x 0.78	SOT-563  1.7 x 1.7 x 0.6	SOT-23  3.05 x 2.49 x 1.09	SOT-89  4.7 x 4.5 x 1.7	SOT-223  6.7 x 7.3 x 1.8
5179		CMUT5179		CMPT5179		
H10				CMPTH10		
918				CMPT918		
H81				CMPTH81		

A46				CMPTA46		CZTA46
A44			CMLTA44	CMPTA44	CXTA44	CZTA44
6517				CMPT6517		
A42E				CMPTA42E		
A42				CMPTA42	CXTA42	CZTA42
5551E		CMUT5551E		CMPT5551E	CXT5551E	CZT5551E
5551	CTLT5551-M832D (2x)	CMUT5551	CMLT5551 (2x)	CMPT5551	CXT5551	CZT5551
5551HC			CMLT5551HC	CMPT5551HC	CXT5551HC	CZT5551HC
A96				CMPTA96		CZTA96
A94			CMLTA94	CMPTA94		CZTA94
6520				CMPT6520		
A92E				CMPTA92E		
A92				CMPTA92	CXTA92	CZTA92
5401E		CMUT5401E		CMPT5401E	CXT5401E	CZT5401E
5401		CMUT5401		CMPT5401	CXT5401	CZT5401
5551 (NPN)			CMLT5554 (2x)			
5401 (PNP)						

2369				CMPT2369		
3646				CMPT3646		
3640				CMPT3640		

(2x) under part number indicates two devices in one package.



Darlington

FAMILY	I _C (A) MAX	BV _{CB0} (V) MIN	BV _{CEO} *BV _{CES} (V) MIN	BV _{EBO} (V) MIN	I _{CB0} (nA) MAX	@ V _{CB} (V)	h _{FE}		@ V _{CE} (V)	@ I _C (mA)	V _{CE(SAT)} (V) MAX	@ I _C (mA)	C _{ob} (pF) MAX	f _T (MHz) MIN	NF (dB) MAX	t _{off} (ns) MAX
							MIN	MAX								

Devices are listed in order of descending h_{FE}.

E> E> NPN	900K	1.0	50	25	10	100	30	900,000	–	5.0	100	1.5	100	–	125	–	–
	250K	1.0	50	25	10	100	30	250,000	–	5.0	100	1.5	100	–	125	–	–
	A14E	0.5	40	40*	10	100	40	40,000	–	5.0	100	1.0	100	–	125	–	–
	6427E	0.5	60	60*	14	100	30	25,000	200,000	5.0	100	1.0	500	7.0	200†	10	–
	A14	0.5	30	30*	10	100	30	20,000	–	5.0	100	1.5	100	–	125	–	–
	6427	0.5	40	40	12	50	30	20,000	200,000	5.0	100	1.5	500	7.0	130	10	–
	A13	0.5	30	30*	10	100	30	10,000	–	5.0	100	1.5	100	–	125	–	–
	A27	0.5	60	60*	10	100	50	10,000	–	5.0	100	1.5	100	–	125	–	–
	A28	0.5	80	80*	12	100	60	10,000	–	5.0	100	1.5	100	8.0	125	–	–
	A29	0.5	100	100*	12	100	80	10,000	–	5.0	100	1.5	100	8.0	125	–	–
	2000	0.6	200	200*	10	500	180	3,000	–	5.0	160	1.1	80	–	–	–	–
PNP	A64	0.5	30	30*	10	100	30	20,000	–	5.0	100	1.5	100	–	125	–	–
	A63	0.5	30	30*	10	100	30	10,000	–	5.0	100	1.5	100	–	125	–	–
	A77	0.5	60	60*	10	100	50	10,000	–	5.0	100	1.5	100	–	125	–	–

Low V_{CE(SAT)}

NPN	3410	1.0	40	25	6.0	100	40	100	300	1.0	100	0.45	1,000	10	100	–	–
	3820	1.0	80	60	5.0	100	60	100	–	5.0	1,000	0.28	1,000	10	150	–	–
PNP	7410	1.0	40	25	6.0	100	40	100	300	1.0	100	0.45	1,000	15	100	–	–
	7820	1.0	80	60	5.0	100	60	100	–	5.0	1,000	0.34	1,000	15	150	–	–
NPN & PNP	3410 (NPN) +	1.0	40	25	6.0	100	40	100	300	1.0	100	0.45	1,000	10	100	–	–
	7410 (PNP)	1.0	40	25	6.0	100	40	100	300	1.0	100	0.45	1,000	15	100	–	–

Chopper

PNP	404A	0.15	40	35	25	100	10	100	400	0.15	12	0.20	24	40	–	–	–
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E> Indicates Enhanced Specification Device. Enhanced Spec in Red and Bold

Ⓢ Indicates Sorted Columns.



Tiny Leadless Module™

Package dimensions shown are maximum values in mm.

FAMILY	TLM621  2.15 x 1.15 x 0.8	TLM832D  3.1 x 2.1 x 1.0	SOT-523  1.7 x 1.7 x 0.78	SOT-563  1.7 x 1.7 x 0.6	SOT-323  2.2 x 2.2 x 1.1	SOT-23  3.05 x 2.49 x 1.09	SOT-89  4.7 x 4.5 x 1.7	SOT-223  6.7 x 7.3 x 1.8
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900K								CZT900K
250K								CZT250K
A14E						CMPTA14E		
6427E				CMLT6427E	CMST6427E			
A14						CMPTA14	CXTA14	CZTA14
6427						CMPT6427		
A13						CMPTA13		
A27						CMPTA27	CXTA27	CZTA27
A28								CZTA28
A29						CMPTA29		
2000								CZT2000
A64						CMPTA64	CXTA64	CZTA64
A63						CMPTA63		
A77						CMPTA77		CZTA77

3410	CTLT3410-M621		CMUT3410	CMLT3410 (2x)	CMST3410	CMPT3410	CXT3410	
3820				CMLT3820G		CMPT3820	CXT3820	
7410	CTLT7410-M621		CMUT7410	CMLT7410 (2x)	CMST7410	CMPT7410	CXT7410	
7820				CMLT7820G		CMPT7820	CXT7820	
3410 (NPN) + 7410 (PNP)		CTLM3474-M832D (2x)		CMLT3474 (2x)				

404A						CMPT404A		
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(2x) under part number indicates two devices in one package.