

Applications	Type No		Maximum Ratings				Electrical Characteristics (Ta = 25°C)										Package				
	NPN	PNP	V <sub>CEO</sub> (V)	I <sub>C</sub> (mA)	P <sub>C</sub> (mW)	h <sub>FE</sub>	f <sub>T</sub> (MIN)		V <sub>CE(sat)</sub> MAX		f <sub>T</sub> (TYP) MIN		NF (dB)	MAX			Fig				
							V <sub>CE</sub> (V)	I <sub>C</sub> (mA)	I <sub>C</sub> (mA)	I <sub>B</sub> (mA)	V <sub>CE</sub> (V)	I <sub>C</sub> (mA)		f (MHz)	I <sub>E</sub> (mA)	V <sub>CE</sub> (V)		f (MHz)	R <sub>B</sub> (Ω)		
	2SC3805	—	30	20	100	40~200	6	1	—	—	(550)	6	1	5.0	6	-1	100	50	SOT-23	F1	
	2SC3195	—	30	20	100	40~200	6	1	—	—	(550)	6	1	5.0	6	-1	100	50	TO-92(M)	F5	
	2SC3194	—	30	20	100	25~140	6	1	—	—	(600)	6	*-1	4.0	6	-1	100	50	TO-92(C)	F3	
FM/RF. MIX OSC	KTC9016	—	30	20	200	40~198	5	1	—	—	260	6	*-1	4.0	6	-1	100	50	TO-92(B)	F3	
	KTC9018	—	30	20	200	40~198	5	1	—	—	500	10	*-8	4.0	6	-1	100	50	TO-92(B)	F3	
	BFS99	—	25	25	200	(40)	10	7	—	—	275	10	7	—	—	—	—	—	SOT-23	F1	
	BFS20	—	25	25	200	(40)	10	7	—	—	275	10	7	—	—	—	—	—	SOT-23	F1	
FM-IF/AF-IF	2SC3879S	—	30	50	150	40~240	12	2	0.4	10	1	100	10	1	*27~33	%	-1	10.7	50	SOT-23	F1
	2SC3193	—	30	50	200	40~240	12	2	0.4	10	1	100	10	1	*27~33	%	-1	10.7	50	TO-92(M)	F5
	2SC3192	—	30	50	300	40~240	12	2	0.4	10	1	100	10	*-1	*27~33	%	-1	10.7	50	TO-92(C)	F3
	KTC9011	—	30	50	400	40~198	5	1	0.4	10	1	100	10	1	—	—	—	—	—	TO-92(B)	F3
AM RF	2SC3878S	—	30	100	150	40~240	12	2	0.4	10	1	80	10	2	3.5	10	-1	1	50	SOT-23	F1
	2SC3191	—	30	100	200	40~240	12	2	0.4	10	1	80	10	2	3.5	10	-1	1	50	TO-92(M)	F5
	2SC3190	—	30	100	400	40~240	12	2	0.4	10	1	80	10	*-2	3.5	10	-1	1	50	TO-92(C)	F3

\*: I<sub>B</sub> \*: G<sub>FE</sub> \*: V<sub>CE</sub>

Applications		Type No		Electrical Characteristics (Ta = 25°C)										Package								
				Maximum Ratings					MIN							MAX						
				V <sub>CE</sub> (V)	I <sub>C</sub> (mA)	P <sub>C</sub> (mW)	h <sub>FE</sub>	V <sub>CE</sub> (sat)(V)	I <sub>C</sub> (mA)	V <sub>CE</sub> (V)	I <sub>C</sub> (mA)	V <sub>CE</sub> (V)	I <sub>C</sub> (mA)			G <sub>VE</sub> (dB)	V <sub>CE</sub> (V)	I <sub>C</sub> (mA)	f (MHz)			
VIII RI	NPN	KTC2348	PNP	30	20	250	20~200	10	2	—	—	10	2	20~28	10	0	0	TO-92(C)	F3			
				15	50	150	40~200	3	8	—	—	—	—	—	—	*1.3	*10	—	—	SOT-23	F1	
VIII OSC	NPN	KTC2349	PNP	15	50	250	(20)	3	8	—	—	10	8	600	10	—	—	10-92(C)	F3			
				15	100	300	(20)	1	3	0.4	10	1	4	600	10	4	*1.7	*10	—	—	SOT-23	F1
VIII OSC	NPN	KTC2347	PNP	15	50	250	(20)	3	8	—	—	10	8	650	10	—	—	10-92(C)	F3			
				15	50	150	40~200	10	5	—	—	—	—	—	—	1,500	10	2	*0.9	10	—	—
VIII OSC	NPN	KTC3121S	PNP	15	50	150	60~120	1	8	—	—	10	8	1,100	10	8	*1.3	*10	—	—	SOT-23	F1

IX PH	2SC3881S	—	25	50	150	20~200	10	10	0.2	15	1.5	250	10	10	*1.6	*10	—	—	SOT-23	F1
	2SC3196	—	40	50	250	(30)	10	4	—	—	—	400	10	4	32~40	12	4	1	TO-92(C)	F3
	2SC3197	—	25	50	300	20~200	12.5	12.5	0.2	15	1.5	300	12.5	12.5	28~36	12.5	12.5	45	45	TO-92(C)

\*C<sub>ob</sub>, \*C<sub>ce</sub>, \*V<sub>10</sub>

Applications		Type No		Electrical Characteristics (Ta = 25°C)										Package						
				Maximum Ratings					MIN							TYP				
				V <sub>CE</sub> (V)	I <sub>C</sub> (A)	P <sub>C</sub> (W)	h <sub>FE</sub>	V <sub>CE</sub> (sat)(V)	I <sub>C</sub> (mA)	V <sub>CE</sub> (V)	I <sub>C</sub> (mA)	V <sub>CE</sub> (V)	I <sub>C</sub> (mA)			f <sub>T</sub> (MHz)	V <sub>CE</sub> (V)	I <sub>C</sub> (mA)	C <sub>ob</sub> (PF)	V <sub>CE</sub> (V)
IX Vertical Output	NPN	2SA1273	PNP	30	2	1	100~320	2	500	2.0	1.5A	30	120	2	500	30	10	1	TO-92L	F4
				30	1	1.5	40~400	2	500	0.8	2A	0.2A	100	2	500	35	10	1	TO-220IS	F7
	NPN	2SA1657	PNP	150	1.5	20	40~140	10	500	1.5	500	50	4	10	500	35	10	1	TO-220IS	F7
				60	3	25	60~300	5	500	1.0	3A	0.3A	3.0	5	500	70	10	1	TO-220IS	F7
	NPN	2SB1366	PNP	60	3	25	60~300	5	500	1.0	3A	0.3A	9	5	500	150	10	1	TO-220IS	F7
				30	3	10	70~240	2	500	0.8	2A	0.2A	100	2	500	35	10	1	TO-220AB	F6
	NPN	2SD1351A	PNP	60	3	25	60~300	5	500	1.0	3A	0.3A	3.0	5	500	70	10	1	TO-220AB	F6
				60	3	30	60~200	5	500	1.0	3A	0.3A	9	5	500	150	10	1	TO-220AB	F6
	NPN	KTA940	PNP	150	1.5	25	40~140	10	500	1.5	500	50	4	10	500	35	10	1	TO-220AB	F6

Applications	Type No		Maximum Ratings					Electrical Characteristics (Ta = 25°C)										Package		
	NPN	PNP	V <sub>CEO</sub> (V)	I <sub>C</sub> (A)	P <sub>C</sub> (W)	h <sub>FE</sub>	(MIN)		MAX		f <sub>T</sub> (MHz)	(TYP)		MIN	Cob (pF)	(TYP) MAX		Fig		
							V <sub>CE</sub> (V)	I <sub>C</sub> (mA)	I <sub>C</sub> (mA)	I <sub>B</sub> (mA)		V <sub>CE</sub> (V)	I <sub>C</sub> (mA)			V <sub>CB</sub> (V)	f (MHz)			
TV Horizontal Output	2SC3231	—	60	4	*40	30~150	5	1A	1.0	4A	0.4A	(8)	5	0.5A	—	—	—	TO-220AB	F6	
	KTC2231	—	60	4	*35	30~150	5	1A	1.0	4A	0.4A	(8)	5	0.5A	—	—	—	TO-220IS	F7	
	KTD1069	—	150	7	*40	(10)	1.5	5A	1.5	5A	0.5A	(18)	10	0.2A	—	—	—	TO-220AB	F6	
	*KTD1427	—	600	5	*80	(8)	5	1A	5	4A	0.8A	(3)	10	0.1A	(165)	10	1	—	TO-3P(H)BS	F10
	KTD1554	—	600	3.5	*40	(8)	5	0.5A	8	3A	0.8A	(3)	10	0.1A	(95)	10	1	—	TO-3P(S)	F11
TV Sound Output	KTD1555	—	600	5	*50	(8)	5	1A	5	4A	0.8A	(3)	10	0.1A	(165)	10	1	—	TO-3P(S)	F11
	*BU508A	—	700	8	*60	—	—	—	1	4.5A	2A	(7)	5	0.1A	(125)	10	1	—	TO-3P(S)	F11
Video Output	2SC3206	KTA949	150	0.05	0.8	70~240	5	10	0.5	10	1	(120)	30	10	5	10	1	—	TO-92L	F4
	2SC3207	—	300	0.1	0.9	(20)	10	4	1.0	10	1	50	10	20	(3.0)	20	1	—	TO-92L	F4
	2SC3229	—	300	0.05	1.5	(20)	10	0.5	1.0	10	1	75	20	20	4.0	20	1	—	TO-202	F8
	2SC3208	—	300	0.15	*12.5	40~170	10	50	1.0	100	20	40	10	30	6.5	50	1	—	TO-120AB	F6
	KTC15691	—	300	0.15	*12.5	40~170	10	50	1.0	100	20	100	10	30	5.0	50	1	—	TO-220S	F7
TV Sound Output	2SC3203	2SA1271	30	0.8	0.6	100~120	1	100	0.5	500	20	(120)	5	10	(15)	10	1	—	TO-92(C)	F3
	2SC3228	2SA1275	160	1	0.9	60~120	5	200	1.5	500	50	20	5	200	20	10	1	—	TO-92L	F4
	2SC3205	2SA1273	30	2	1	100~120	2	500	2.0	1.5A	30	(120)	2	500	(30)	10	1	—	TO-92L	F4
	2SC4369	2SA1658	30	3	*15	40~400	2	500	0.8	2A	0.2A	(100)	2	500	(35)	10	1	—	TO-220IS	F7
	2SD3058A	—	60	3	*25	60~300	5	500	1.0	3A	0.3A	(3.0)	5	500	(70)	10	1	—	TO-220IS	F7
	—	2SB1366	60	3	*25	60~300	5	500	1.0	3A	0.3A	(9)	5	500	(150)	10	1	—	TO-220IS	F7
	2SC3230	2SA1276	30	3	*10	70~240	2	500	0.8	2A	0.2A	(100)	2	500	(35)	10	1	—	TO-220AB	F6
	2SD1351A	—	60	3	*25	60~300	5	500	1.0	3A	0.3A	(3.0)	5	500	(70)	10	1	—	TO-220AB	F6
	—	2SB908	60	3	*30	60~200	5	500	1.0	3A	0.3A	(9)	5	500	(150)	10	1	—	TO-220AB	F6
	KTC2230	—	160	0.1	0.8	120~400	10	10	0.5	50	5	50	10	10	7.0	10	1	—	TO-92L	F4
	KTC2230A	—	180	0.1	0.8	120~400	10	10	0.5	50	5	50	10	10	7.0	10	1	—	TO-92L	F4
	KTC2231	—	160	0.2	*12	100~320	10	50	1.0	200	20	50	10	50	10	10	1	—	TO-202	F8
	KTC2231A	—	180	0.2	*12	100~320	10	50	1.0	200	20	50	10	50	10	10	1	—	TO-202	F8
KTC2483	—	160	1.5	*15	100~320	5	200	1.0	500	50	40	5	200	20	10	1	—	TO-202	F8	

Re: Tc = 25°C

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	NPN	PNP	V <sub>CEO</sub> (V)	I <sub>C</sub> (A)	P <sub>C</sub> (W)	h <sub>FE</sub>	h <sub>FE</sub>		V <sub>CE(sat)</sub>		MAX		MAX		SW time (TYP)				MAX
							V <sub>CE</sub> (V)	I <sub>C</sub> (A)	V <sub>CE(sat)</sub> (V)	I <sub>C</sub> (A)	I <sub>B</sub> (A)	V <sub>BE(sat)</sub> (V)	I <sub>C</sub> (A)	I <sub>B</sub> (A)	t <sub>on</sub> (μs)	t <sub>off</sub> (μs)			
Switching Regulator	2SC4371	—	400	5	30	(12)	5	3	1.0	5	1	1.5	5	1	*1.0	2.5	1.0	TO-220IS	F7
	KTD1947	—	100	10	30	(500)	1	1	0.3	5	0.05	1.2	5	0.05	(0.5)	(5.0)	(1.0)	TO-220IS	F7
	KTC3148	—	800	3	40	(10)	5	0.8	0.6	0.8	0.16	1.2	0.8	0.16	*1.0	4.0	1.0	TO-220AB	F6
	KTC2553	—	400	5	40	(12)	5	3	1.0	5	1	1.5	5	1	*1.0	2.5	1.0	TO-220AB	F6
	KTC2200	—	400	7	40	(10)	5	3	1.5	3	0.3	2.0	3	0.3	*1.0	2.0	1.0	TO-3P(S)	F11
	KTC2791	—	800	5	100	(10)	5	10mA	1.0	3	0.6	1.5	3	0.6	*1.0	3.5	1.0	TO-3P(L)	F12
	KTC2650	—	400	10	100	(10)	5	5	1.5	5	0.5	2.0	5	0.5	*1.0	2.5	1.0	TO-3P(L)	F12
	KTC3680	—	800	7	120	(10)	5	10mA	1.0	3	0.6	1.5	3	0.6	*1.0	3.5	1.0	TO-3P(L)	F12
	BUV48A	—	450	15	(150)	—	—	—	—	—	—	—	1.6	1.6	1	3	0.8	TO-3P(L)	F12
	BUV48C	—	700	15	(175)	—	—	—	—	—	—	—	1.5	6	1.5	1	3	0.7	TO-3P(L)
Darlington	KTD686	—	80	4	30	(2000)	2	1	1.5	3	6mA	2	3	6mA	0.2	1.5	0.6	TO-220AB	F6
	BU806	—	200	8	(60)	—	—	—	1.5	5	0.05	2.8	5	0.5	0.35	0.55	0.2	TO-220AB	F6

\* 1.

Applications	Type No		Maximum Ratings				Electrical Characteristics (Ta=25°C)										Package	Fig			
	NPN	PNP	V <sub>CEO</sub> (V)	I <sub>C</sub> (mA)	P <sub>D</sub> (mW)	h <sub>FE</sub>	h <sub>FE</sub>		V <sub>CE(sat)</sub>		MAX		MAX		SW Time				MAX		
							V <sub>CE</sub> (V)	I <sub>C</sub> (mA)	V <sub>CE(sat)</sub> (V)	I <sub>C</sub> (mA)	I <sub>B</sub> (mA)	f <sub>T</sub> (MHz)	V <sub>CE</sub> (V)	I <sub>C</sub> (mA)	t <sub>on</sub> (ns)	t <sub>off</sub> (ns)				t <sub>r</sub> (ns)	t <sub>off</sub> (ns)
Switching	2N3904	2N3906	40	200	625	*100~100	1.0	10	0.2	10	1.0	300	20	10	—	35	200	50	TO-92(B)	F3	
	—	2N5401	150	600	625	*60~240	5.0	1.0	0.2	10	1.0	100	10	10	—	—	—	—	TO-92(B)	F3	
	2N5551	—	160	600	625	*80~250	5.0	10	0.2	50	5.0	100	10	10	—	—	—	—	TO-92(B)	F3	
	KTN2369	—	15	500	625	*40~130	1.0	10	0.25	10	1.0	500	10	10	12	—	—	13	—	TO-92(B)	F3
	KTN2369A	—	15	500	625	*40~130	1.0	10	0.3	10	1.0	500	10	10	12	—	—	13	—	TO-92(B)	F3
	KTN2222	KTN2907	30	600	625	(50)	10	1.0	0.4	150	15	250	20	20	—	10	25	225	60	TO-92(B)	F3
	KTN2222A	KTN2907A	40	600	625	(50)	10	1.0	0.3	150	15	360	20	20	—	10	25	225	60	TO-92(B)	F3
	—	*MPSA92	100	500	625	*125	10	1.0	0.5	20	2.0	50	20	10	—	—	—	—	—	TO-92(B)	F3
	—	*MPSA93	200	500	625	*125	10	1.0	0.4	20	2.0	50	20	10	—	—	—	—	—	TO-92(B)	F3

\* Pulse width: 100μs, Duty Cycle: 20%

Applications	Type No		Maximum Ratings				Electrical Characteristics (Ta = 25°C)										Package		
	NPN	PNP	V <sub>CEO</sub> (V)	I <sub>C</sub> (A)	P <sub>C</sub> (W)	h <sub>FE</sub>	V <sub>CE(sat)</sub>		MAX		f <sub>T</sub> (MHz)	TYP		C <sub>ob</sub> (pF)	TYP		Fig		
							V <sub>CE</sub> (V)	I <sub>C</sub> (mA)	I <sub>C</sub> (mA)	I <sub>B</sub> (mA)		V <sub>CE</sub> (V)	I <sub>C</sub> (mA)		V <sub>CE</sub> (V)	I <sub>C</sub> (mA)			
27MHz Drive/Output	KTC2036A	—	80	1	1.2	100	2	150	0.7	500	20	150	10	100	12	10	1	TO-202	F8
	KTC2075	—	80	4	1.0	25	5	0.5A	1.5	3A	0.3A	100	5	300	40	V <sub>CE</sub> = 10	1	TO-225AB	1.6
High β Low V <sub>CE(sat)</sub>	KTC3112	—	50	0.15	0.4	600~3600	6	2	0.25	100	10	250	10	10	3.5	10	1	TO-92L	1.3
	KTD1582	—	50	1	1	800~3200	5	0.3A	0.3	0.5A	5	250	10	10.5A	18	10	1	TO-92L	1.4
Strobe Flash	2SC3226	—	10	2	0.9	140~600	1	0.5A	0.5	2A	50	150	1	0.5A	27	10	1	TO-92L	F4
	2SC4377	—	30	2	*1	140~600	1	0.5A	0.5	2A	50	150	1	0.5A	27	10	1	SOT-89	F2
	—	KTA1242	20	5	*10	100~320	2	0.5A	1	4A	0.1A	170	2	0.5A	62	10	1	SMD-3	F13
Muting	*KTC2878	—	20	0.3	0.4	200~1200	2	4	0.3	30	3	30	6	4	4.8	10	1	TO-92(C)	F3

\*Pc\*: Ta = 25°C Pc\*: mounted on ceramic substrate (250mm<sup>2</sup> × 0.8t)