



Applications	Type No		Electrical Characteristics (Ta = 25°C)										Package								
			Maximum Ratings					MIN							MAX						
			V <sub>CE(O)</sub> (V)	I <sub>C</sub> (mA)	P <sub>C</sub> (mW)	h <sub>FE</sub>	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)			G <sub>re</sub> (dB)	V <sub>CC</sub> (V)	I <sub>C</sub> (mA)	f (MHz)			
VIII RI	NPN	KTC2348	30	20	250	20~300	10	2	—	—	—	400	10	2	20~28	10	0	TO-92(C)	F3		
			VIII OSC	KTC2349	15	50	150	40~200	3	8	—	—	—	650	10	8	*1.3	*10	—	SOT-23	F1
					Tuner	BFQ31	15	50	250	(20)	3	8	—	—	—	600	10	8	*1.5	*10	—
VIII OSC, VIII VIN	KTC2347	15	100	200			(20)	1	3	0.4	10	1	600	10	4	*1.7	*10	—	SOT-23	F1	
		VIII RI	KTC3120S	15	50	250	(20)	3	8	—	—	—	650	10	8	*1.5	*10	—	TO-92(C)	F3	
VIII OSC	KTC3121S			15	50	150	40~200	10	5	—	—	—	1,500	10	2	*0.9	10	—	SOT-23	F1	
		IV PII	NPN	2SC388IS	25	50	150	60~320	3	8	—	—	—	1,100	10	8	*1.3	*10	—	SOT-23	F1
2SC3196	25				50	150	20~200	10	10	0.2	15	1.5	250	10	10	*1.6	*10	—	SOT-23	F1	
	2SC3197				40	50	250	(30)	10	4	—	—	—	400	10	4	32~40	12	4	TO-92(C)	F3
IV Vertical Output	NPN	2SC3205	30	2	1	100~320	2	500	2.0	1.5A	30	120	2	500	2	500	30	10	TO-92L	F4	
			2SC4369	30	3	1.5	40~400	2	500	0.8	2A	0.2A	100	2	500	2	500	35	10	TO-220IS	F7
				2SC4368	150	1.5	20	40~140	10	500	1.5	500	50	4	500	10	500	35	10	TO-220IS	F7
2SD2058A	60	3	2.5	60~300	5	500	1.0	3A	0.3A	0.3A	3.0	5	500	5	500	70	10	TO-220IS	F7		
	2SB1366	60	3	2.5	60~300	5	500	1.0	3A	0.3A	9	5	500	5	500	150	10	TO-220IS	F7		
2SC3230	30	3	10	70~240	2	500	0.8	2A	0.2A	0.2A	100	2	500	2	500	35	10	TO-220AB	F6		
	2SD1351A	60	3	2.5	60~300	5	500	1.0	3A	0.3A	3.0	5	500	5	500	70	10	TO-220AB	F6		
2SB988	60	3	30	60~200	5	500	1.0	3A	0.3A	0.3A	9	5	500	5	500	150	10	TO-220AB	F6		
	KTA940	150	1.5	25	40~140	10	500	1.5	500	50	4	10	500	35	10	1	TO-220AB	F6			

\*Cob, \*Cre, \*V<sub>CE</sub>

Applications	Type No		Electrical Characteristics (Ta = 25°C)										Package							
			Maximum Ratings					MIN							MAX					
			V <sub>CE(O)</sub> (V)	I <sub>C</sub> (A)	P <sub>C</sub> (W)	h <sub>FE</sub>	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)			G <sub>re</sub> (dB)	V <sub>CC</sub> (V)	I <sub>C</sub> (mA)	f (MHz)		
IV PII	NPN	2SC388IS	25	50	150	20~200	10	10	0.2	15	1.5	250	10	10	*1.6	*10	—	1	SOT-23	F1
			2SC3196	40	50	250	(30)	10	4	—	—	—	400	10	4	32~40	12	4	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	45	TO-92(C)

★ Under Development

Applications	Type No		Electrical Characteristics (Ta = 25°C)										Package						
			Maximum Ratings					Characteristics (Ta = 25°C)											
	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)	V <sub>CE</sub> (V)	I <sub>C</sub> (mA)	Cob (pF)	V <sub>CB</sub> (V)	f (MHz)	Fig		
TV Horizontal Output	2SC3231	—	60	4	*40	30~150	5	1A	1.0	4A	0.4A	(8)	5	0.5A	—	—	—	TO-220AB	F6
	KTC2233I	—	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(IS)	F11
	KTD1555	—	600	5	*50	(8)	5	1A	5	4A	0.8A	(3)	10	0.1A	(165)	10	1	TO-3P(IS)	F11
	*BU508A	—	700	8	*60	—	—	—	1	4.5A	2A	(7)	5	0.1A	(125)	10	1	TO-3P(IS)	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-220AB	F6
	KTC1569I	—	300	0.15	*12.5	40~170	10	50	1.0	100	20	100	10	30	5.0	50	1	TO-220IS	F7
TV Sound Output	2SC3203	2SA1271	30	0.8	0.6	100~320	1	100	0.5	500	20	(120)	5	10	(13)	10	1	TO-92(C)	F3
	2SC3228	2SA1275	160	1	0.9	60~320	5	200	1.5	500	50	20	5	200	20	10	1	TO-92L	F4
	2SC3205	2SA1273	30	2	1	100~320	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
	2SD2058A	—	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
	—	2SB988	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	

Pc\*:Tc = 25°C

\*Under Development

Applications	Type No		Maximum Ratings $T_c = 25^\circ\text{C}$				Electrical Characteristics ( $T_a = 25^\circ\text{C}$ )										Package	Fig		
	NPN	PNP	$V_{CE0}$ (V)	$I_C$ (A)	$P_C$ (W)	$h_{FE}$	$V_{CE(sat)}$ (MIN)		$V_{CE(sat)}$ MAX		$V_{BE(sat)}$		MAX		SW time (TYP) MAX					
							$V_{CE}$ (V)	$I_C$ (A)	$I_C$ (A)	$I_B$ (A)	$I_C$ (A)	$I_B$ (A)	$I_C$ (A)	$I_B$ (A)	$t_{on}$ ( $\mu\text{s}$ )	$t_{sg}$ ( $\mu\text{s}$ )			$t_f$ ( $\mu\text{s}$ )	
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(IS)	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)	—	—	—	—	—	—	—	—	—	—	—	—	—	TO-3P(L)	F12
	BUV48C	—	700	15	(175)	—	—	—	—	—	—	—	—	—	—	—	—	—	TO-3P(L)	F12
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)	—	—	—	—	—	—	—	—	—	—	—	—	TO-220AB	F6	

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Applications	Type No		Maximum Ratings				Electrical Characteristics ( $T_a = 25^\circ\text{C}$ )										Package	Fig		
	NPN	PNP	$V_{CE0}$ (V)	$I_C$ (mA)	$P_D$ (mW)	$h_{FE}$	$V_{CE}$ (MIN)		$V_{CE(sat)}$		$f_T$		MIN		MAX				SW Time	
							$V_{CE}$ (V)	$I_C$ (mA)	$I_C$ (mA)	$I_B$ (mA)	$f_T$ (MHz)	$V_{CE}$ (V)	$I_C$ (mA)	$I_C$ (mA)	$I_B$ (mA)	$t_d$ (ns)			$t_r$ (ns)	$t_{sg}$ (ns)
Switching	2N3904	2N3906	40	200	625	*100~300	1.0	10	0.2	10	300	20	10	10	35	35	200	50	TO-92(B)	F3
	—	2N5401	150	600	625	*60~240	5.0	1.0	0.2	10	100	10	10	10	—	—	—	—	TO-92(B)	F3
	2N5551	—	160	600	625	*80~250	5.0	10	0.2	50	100	10	10	—	—	—	—	—	TO-92(B)	F3
	KTN2369	—	15	500	625	*40~120	1.0	10	0.25	10	500	10	10	12	—	—	13	—	TO-92(B)	F3
	KTN2369A	—	15	500	625	*40~120	1.0	10	0.3	10	500	10	10	12	—	—	13	—	TO-92(B)	F3
	KTN2222	KTN2907	30	600	625	(50)	10	1.0	0.4	150	250	20	20	—	10	25	225	60	TO-92(B)	F3
	KTN2222A	KTN2907A	40	600	625	(50)	10	1.0	0.3	150	300	20	20	—	10	25	225	60	TO-92(B)	F3
	—	*MPSA92	300	500	625	*(25)	10	1.0	0.5	20	50	50	20	10	—	—	—	—	TO-92(B)	F3
	—	*MPSA93	200	500	625	*(25)	10	1.0	0.4	20	50	50	20	10	—	—	—	—	TO-92(B)	F3

\*Pulse width  $\leq 300\mu\text{s}$ , Duty Cycle  $\leq 2\%$

\* Under Development

Applications	Type No		Maximum Ratings				Electrical Characteristics (T <sub>a</sub> = 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>		TYP		C <sub>ob</sub> (pF)	TYP		
							V <sub>CE</sub> (V)	I <sub>C</sub> (mA)	V <sub>CE</sub> (V)	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)		V <sub>CE</sub> (V)
27MHz Drive/Output	KTC2036A	—	80	1	1.2	100	2	150	0.7	500	20	150	10	100	12	10	1	F8
	KTC2075	—	80	4	10	25	5	0.5A	1.5	3A	0.3A	100	5	500	40	V <sub>CE</sub> = 10	1	TO-202 TO-220AB
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-92J
	KTD1582	—	50	1	1	800~3200	5	0.3A	0.3	0.5A	5	250	10	(0.5A)	18	10	1	TO-92J
Strobo Flash	2SC3226	—	10	2	0.9	140~600	1	0.5A	0.5	2A	50	150	1	0.5A	27	10	1	TO-92L
	2SC4377	—	30	2	*1	140~600	1	0.5A	0.5	2A	50	150	1	0.5A	27	10	1	SOT-89
	—	KTA1242	20	5	*10	100~320	2	0.5A	1	4A	0.1A	170	2	0.5A	62	10	1	SMP-3
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)

\*Pc\*: T<sub>c</sub> = 25°C Pc\*: mounted on ceramic substrate (250mm<sup>2</sup> × 0.80)