

Applications	Type No		Electrical Characteristics (Ta = 25°C)														Package					
			Maximum Ratings																			
	NPN	PNP	V _{CEO} (V)	I _C (mA)	P _C (mW)	h _{FE}	(MIN)		V _{CE(sat)} (V)	MAX		f _T (MHz)	(TYP) MIN		NF (dB)	MAX						
							V _{CE} (V)	I _C (mA)		I _C (mA)	I _B (mA)		V _{CE} (V)	I _C (mA)		I _E (mA)	f (MHz)	R _g (Ω)	Fig			
		—	30	20	100	40~200	6	1	—	—	—	—	(550)	6	1	5.0	6	—1	100	50	SOT-23	F1
		—	30	20	100	40~200	6	1	—	—	—	—	(550)	6	1	5.0	6	—1	100	50	TO-92(M)	F5
		—	30	20	100	25~140	6	1	—	—	—	—	(600)	6	*-1	4.0	6	—1	100	50	TO-92(C)	F3
FM/RF. MIX OSC		—	30	20	200	40~198	5	1	—	—	—	—	260	6	*-1	4.0	6	—1	100	50	TO-92(B)	F3
		—	30	20	200	40~198	5	1	—	—	—	—	500	10	*-8	4.0	6	—1	100	50	TO-92(B)	F3
		—	25	25	200	(40)	10	7	—	—	—	—	275	10	7	—	—	—	—	—	SOT-23	F1
		—	25	25	200	(40)	10	7	—	—	—	—	275	10	7	—	—	—	—	—	SOT-23	F1
FM-IF/AF-IF		—	30	50	150	40~240	12	2	0.4	10	1	100	10	1	*27~33	*6	—1	10.7	50	SOT-23	F1	
		—	30	50	200	40~240	12	2	0.4	10	1	100	10	1	*27~33	*6	—1	10.7	50	TO-92(M)	F5	
		—	30	50	300	40~240	12	2	0.4	10	1	100	10	*-1	*27~33	*6	—1	10.7	50	TO-92(C)	F3	
		—	30	50	400	40~198	5	1	0.4	10	1	100	10	1	—	—	—	—	—	—	TO-92(B)	F3
AM RF		—	30	100	150	40~240	12	2	0.4	10	1	80	10	2	3.5	10	—1	1	50	SOT-23	F1	
		—	30	100	200	40~240	12	2	0.4	10	1	80	10	2	3.5	10	—1	1	50	TO-92(M)	F5	
		—	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_E *: C_{PE} *: V_{CC}

Applications	Type No		Maximum Ratings			Electrical Characteristics (Ta = 25°C)											Package		
						V _{CE(sat)}			MAX		f _T (MHz)	(TYP)		MIN	Cob (pF)	(TYP) MAX			
	NPN	PNP	V _{CE0} (V)	I _C (A)	P _C (W)	h _{FE}	(MIN)		V _{CE} (V)	I _C (mA)		I _B (mA)	V _{CE} (V)			I _C (mA)	f (MHz)	Fig	
							V _{CE} (V)	I _C (mA)											
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)	15	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(1S)	F11
	KTD1555	—	600	5	*50	(8)	5	1A	5	4A	0.8A	(3)	10	0.1A	(165)	10	1	TO-3P(1S)	F11
	*BU508A	—	700	8	*60	—	—	—	1	4.5A	2A	(7)	5	0.1A	(125)	10	1	TO-3P(1S)	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
	2SC3207	—	300	0.1	0.9	(20)	10	4	1.0	10	1	50	10	20	(3.0)	20	1	TO-92L
	2SC3229	—	300	0.05	1.5	(20)	10	0.5	1.0	10	1	75	20	20	4.0	20	1	TO-202
	2SC3208	—	300	0.15	*12.5	40~170	10	50	1.0	100	20	40	10	30	6.5	50	1	TO-220AB
	KTC15691	—	300	0.15	*12.5	40~170	10	50	1.0	100	20	100	10	30	5.0	50	1	TO-2201S

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)
	2SC3228	2SA1275	160	1	0.9	60~320	5	200	1.5	500	50	20	5	200	20	10	1	TO-92L
	2SC3205	2SA1273	30	2	1	100~320	2	500	2.0	1.5A	30	(120)	2	500	(30)	10	1	TO-92L
	2SC4369	2SA1658	30	3	*15	40~400	2	500	0.8	2A	0.2A	(100)	2	500	(35)	10	1	TO-2201S
	2SD2058A	—	60	3	*25	60~300	5	500	1.0	3A	0.3A	(3.0)	5	500	(70)	10	1	TO-2201S
	—	2SB1366	60	3	*25	60~300	5	500	1.0	3A	0.3A	(9)	5	500	(150)	10	1	TO-2201S
	2SC3230	2SA1276	30	3	*10	70~240	2	500	0.8	2A	0.2A	(100)	2	500	(35)	10	1	TO-220AB
	2SD1351A	—	60	3	*25	60~300	5	500	1.0	3A	0.3A	(3.0)	5	500	(70)	10	1	TO-220AB
	—	2SB988	60	3	*30	60~200	5	500	1.0	3A	0.3A	(9)	5	500	(150)	10	1	TO-220AB
	KTC2230	—	160	0.1	0.8	120~400	10	10	0.5	50	5	50	10	10	7.0	10	1	TO-92L
	KTC2230A	—	180	0.1	0.8	120~400	10	10	0.5	50	5	50	10	10	7.0	10	1	TO-92L
	KTC2231	—	160	0.2	*12	100~320	10	50	1.0	200	20	50	10	50	10	10	1	TO-202
	KTC2231A	—	180	0.2	*12	100~320	10	50	1.0	200	20	50	10	50	10	10	1	TO-202
	KTC2483	—	160	1.5	*15	100~320	5	200	1.0	500	50	40	5	200	20	10	1	TO-202

P_C*, T_C = 25°C

Applications	Type No		Maximum Ratings $T_c = 25^\circ\text{C}$				Electrical Characteristics ($T_a = 25^\circ\text{C}$)												Package																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																		
			V_{CE0} (V)	I_C (A)	P_C (W)	h_{FE}	(MIN)		$V_{CE(sat)}$		MAX		$V_{BG(sat)}$	MAX		SW time (TYP) MAX																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																					
	V_{CE} (V)	I_C (A)					V	I_C (A)	I_B (A)	I_C (A)	I_B (A)	t_{on} (μs)		t_{sig} (μs)	t_f (μs)	Fig																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																					
Switching Regulator		NPN	—	—	—																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																</

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Applications	Type No		Electrical Characteristics (Ta = 25°C)																			
			Maximum Ratings			VCE(sat)										SW Time						
	NPN	PNP	VCEO (V)	IC (mA)	PD (mW)	hFE	(MIN)		MAX		fT (MHz)	VCE (V)	IC (mA)	IB (mA)	IC (mA)	tON (ns)	tD (ns)	tr (ns)	tsg (ns)	tr (ns)		
							VCE (V)	IC (mA)	IC (mA)	IB (mA)											IC (mA)	tON (ns)
Switching	2N3904	2N3906	40	200	625	* 100~300	1.0	10	0.2	10	300	20	10	—	35	35	—	50	TO-92(B)	F3		
	—	2N5401	150	600	625	* 60~240	5.0	1.0	0.2	10	100	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	20	10	—	—	—	—	—	TO-92(B)	F3		
	—	*MPSA93	200	500	625	*(25)	10	1.0	0.4	20	50	20	10	—	—	—	—	—	TO-92(B)	F3		

* Pulse width $\leq 300\mu\text{s}$, Duty Cycle $\leq 2.0\%$

Applications	Type No		Maximum Ratings			Electrical Characteristics (Ta = 25°C)												Package	
			V _{CEO} (V)	I _C (A)	P _C (W)	h _{FE}	V _{CE(sat)}		MAX		f _T (MHz)	TYP		C _{ob} (pF)	TYP				
	V _{CE} (V)	I _C (mA)					I _C (mA)	I _B (mA)	V _{CE} (V)	I _C (mA)		V _{CE} (V)	I _C (mA)						
	NPN	PNP														f (MHz)	Fig		
27MHz Drive/Output	KTC2036A	—	80	1	1.2	100	2	150	0.7	500	20	10	100	12	10	1	TO-202	F8	
	KTC2075	—	80	4	×10	25	5	0.5A	1.5	3A	0.3A	5	500	40	V _{CE} = 10	1	TO-220AB	F6	
High β Low V _{CE(sat)}	KTC3112	—	50	0.15	0.4	600~3600	6	2	0.25	100	10	10	10	3.5	10	1	TO-92L	F3	
	KTD1582	—	50	1	1	800~3200	5	0.3A	0.3	0.5A	5	10	(0.5A)	18	10	1	TO-92L	F4	
Strobo Flash	2SC3226	—	10	2	0.9	140~600	1	0.5A	0.5	2A	50	1	0.5A	27	10	1	TO-92L	F4	
	2SC4377	—	30	2	*1	140~600	1	0.5A	0.5	2A	50	1	0.5A	27	10	1	SOT-89	F2	
	—	KTA1242	20	5	*10	100~320	2	0.5A	1	4A	0.1A	2	0.5A	62	10	1	SMP-3	F13	
Muting	★KTC2878	—	20	0.3	0.4	200~1200	2	4	0.3	30	3	6	4	4.8	10	1	TO-92(C)	F3	

Pc: T_c = 25°C Pc*: mounted on ceramic substrate (250mm²×0.8t)

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