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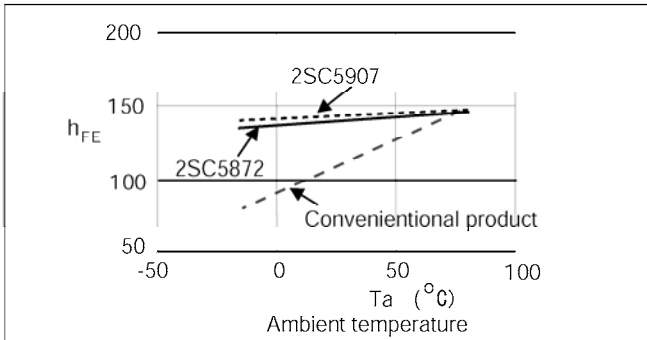
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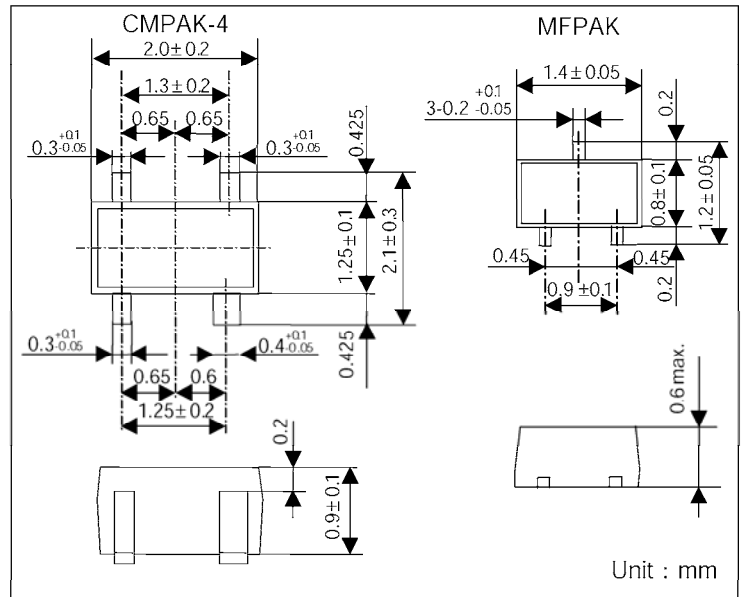
Hitachi High Frequency Bipolar Transistors

Features

- Excellent C/N characteristics
- Small package
- Excellent temperature characteristics



Package Dimensions

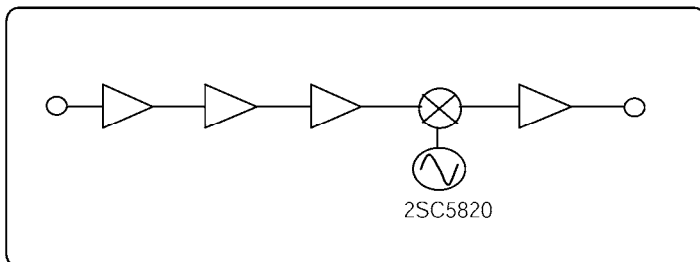


Main Electrical Characteristics

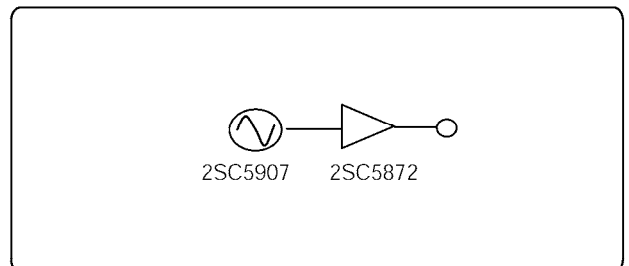
Type No.	Ratings		f_T (GHz) typ.	Characteristics			Cre (pF) typ.	Package
	V_{CE0} (V)	I_c (mA)		PG (dB) typ.	NF (dB) typ.	f (GHz)		
2SC5820	4.6	35	20	17.5	1.15	1.8	0.11	CMPAK-4
2SC5872	6	50	10	16	1.0	0.9	0.25	MFPK
2SC5894	4	12	20	18	1.8	1.8	0.04	CMPAK-4
2SC5907	4	80	7.5	14	1.2	0.9	0.45	MFPK

Application Examples

- Oscillator for BS/CS converters



- Oscillator and buffer amplifier for RF VCOs



- Low noise amplifier for cordless phones
 - Low noise amplifier for 2.4-GHz digital cordless phones
 - 2SC5894

Small Signal FET

•High Frequency Amplification

Package	Type No.	Ratings		Characteristics			Status	
		V _{DS} (V)	I _D (A)	C _{iss} (pF) typ	PG(dB) typ	NF (dB) typ		f (GHz)
SPAK	2SK439	20	30m	2.5	30	2.0	0.1	O★
TO-92	2SK168	30	20m	5.0	27	1.7	0.1	*★
	2SK359	20	30m	2.5	30	2.0	0.1	O★
CMPAK	2SK1215	20	30m	2.5	30	2.0	0.1	O★
CMPAK-4	2SK2685☆	6	20m	0.80	21	0.5	0.9	O★
	3SK296	12	25m	1.5	19.5	2.0	0.9	O★
	3SK298	12	25m	2.9	25	1.0	0.2	O★
	3SK309☆	6	18m	0.39	21	1.25	0.9	O★
	3SK317	14	25m	3.0	27.6	1.0	0.2	O★
	3SK318	6	20m	1.7	21.5	1.6	0.9	O★
	BB101C	6	25m	1.7	20	2.1	0.9	O★
	BB102C	12	25m	1.6	20	2.1	0.9	*★
	BB301C	6	25m	3.1	26	1.3	0.2	O★
	BB302C	12	25m	3.0	26	1.7	0.2	*★
	BB304C	12	25m	3.1	29	1.2	0.2	O★
	BB305C	12	25m	3.1	28	1.5	0.2	O★
	BB501C	6	20m	1.7	21.5	1.8	0.9	O★
	BB502C	6	20m	1.7	22	1.6	0.9	O★
	BB503C	6	20m	1.7	22	1.8	0.9	Δ★
	BB504C	6	30m	2.1	22	1.75	0.9	Δ★
	BIC702C	6	20m	2.0	23	1.6	0.9	*★
	BIC703C	6	30m	2.0	22	1.8	0.9	*★

Package	Type No.	Ratings		Characteristics			Status	
		V _{DS} (V)	I _D (A)	C _{iss} (pF) typ	PG(dB) typ	NF (dB) typ		f (GHz)
MPAK	2SK217	30	20m	6.8	27	1.7	0.1	*★
	2SK360	20	30m	2.5	30	2.0	0.1	O★
MPAK-4	3SK295	12	25m	1.5	19.5	2.0	0.9	O★
	3SK297	12	25m	2.9	25	1.0	0.2	O★
	3SK300	14	25m	3.1	27.6	1.0	0.2	O★
	3SK319	6	20m	1.7	21.5	1.6	0.9	O★
	BB101M	6	25m	1.7	20	2.1	0.9	O★
	BB102M	12	25m	1.6	20	2.1	0.9	O★
	BB301M	6	25m	3.1	26	1.3	0.2	O★
	BB302M	12	25m	3.0	26	1.7	0.2	*★
	BB304M	12	25m	3.1	29	1.2	0.2	O★
	BB305M	12	25m	3.1	28	1.5	0.2	O★
	BB501M	6	20m	1.7	21.5	1.8	0.9	O★
	BB502M	6	20m	1.7	22	1.6	0.9	Δ★
	BB503M	6	20m	1.7	22	1.8	0.9	Δ★
	BB504M	6	30m	2.1	22	1.75	0.9	Δ★
	BIC702M	6	20m	2.0	23	1.6	0.9	*★
	BIC703M	6	30m	2.0	22	1.8	0.9	*★

•High Frequency Amplification (Twin Type)

Package	Type No.	Ratings		Characteristics (FET-1)			Characteristics (EET-2)			Status		
		V _{DS} (V)	I _D (A)	C _{iss} (pF) typ	lyfsl (mS) typ	NF (dB) typ	f (GHz)	C _{iss} (pF) typ	lyfsl (mS) typ		NF (dB) typ	f (GHz)
CMPAK-6	TBB1002	6	30m	1.8	26	1.7	0.9	2.6	25	1.2	0.2	O★
	TBB1004	6	30m	1.8	26	1.7	0.9	2.7	32	1.2	0.2	O★
	TBB1005	6	30m	1.8	26	1.7	0.9	2.6	25	1.2	0.2	Δ★
	TBB1008	6	30m	1.8	26	1.7	0.9	2.7	32	1.2	0.2	Δ★

•μ-FET Series (Small Signal Switching)

Package	Type No.	V _{DSS} (V)	I _D (A)	R _{DS(on)} (Ω)								C _{iss}	Status
				V _{GS} = 10V		V _{GS} = 4V		V _{GS} = 2.5V		V _{GS} = 1.5V			
				typ	max	typ	max	typ	max	typ	max		
MPAK	2SJ574	-30	-0.3	1.1	1.3	2.2	3.1	-	-	-	-	50	O★
	2SJ575	-30	-0.1	2.8	3.3	5.7	7.9	-	-	-	-	25	Δ★
	2SK3287	30	0.3	1.26	1.44	2.8	3.44	-	-	-	-	6	O★
	2SK3288	30	0.1	2.7	3.5	4.7	7.0	-	-	-	-	3	O★
	2SK3290	30	0.5	0.46	0.525	0.9	1.25	-	-	-	-	5	O★
CMPAK	2SJ576	-30	-0.1	2.8	3.3	5.7	7.9	-	-	-	-	25	O★
	2SJ586	-20	-0.1	-	-	4.1	5.0	6.0	8.5	-	-	28	O★
	2SK3289	30	0.3	1.26	1.44	2.8	3.44	-	-	-	-	6	O★
	2SK3348	20	0.1	-	-	1.6	1.9	2.2	3.2	-	-	18	O★
2SK3378	30	0.1	2.7	3.5	4.7	7.0	-	-	-	-	1.6	O★	
SMPAK	2SJ587	-20	50m	-	-	8.5	11.0	15.0	22.0	-	-	13	O★

Package	Type No.	V _{DSS} (V)	I _D (A)	R _{DS(on)} (Ω)								C _{iss}	Status
				V _{GS} = 10V		V _{GS} = 4V		V _{GS} = 2.5V		V _{GS} = 1.5V			
				typ	max	typ	max	typ	max	typ	max		
SMPAK	2SK3349	20	50m	-	-	2.8	3.6	4.8	7.2	-	-	6	O★
	H5N0301SM	30	50m	-	-	6	7.2	9	13	-	-	12	Δ★
	H5P0301SM	-30	50m	-	-	16	20	22	30	-	-	15	Δ★
MFPAK	H5N0201MF	20	0.05	-	-	2.8	3.6	4.8	7.2	-	-	6	Δ★
	H5N0301MF	30	0.05	-	-	6	7.2	9	13	-	-	12	Δ★
	H5P0201MF	-20	-0.05	-	-	8.5	11.0	15.0	22.0	-	-	13	Δ★
CMPAK-6	H5P0301MF	-30	-0.05	-	-	16	20	22	30	-	-	15	Δ★
	HAT1066G	-30	-0.05	-	-	16	20	22	31	-	-	12	SPL
	HAT2106G	30	0.05	-	-	6.5	8	10	14	-	-	15	SPL
	HAT3016G	-30/ 30	-0.05/ 0.05	-	-	16/ 6.5	20/ 8	22/ 10	31/ 20	-	-	12/ 15	SPL

•General Amplification

Package	Type No.	Ratings			Characteristics		Status
		V _{DS} (V _{DSX}) (V)	V _{GSS} (V _{GSO}) (V)	I _D (I _G) (A)	lyfsl (mS) min	I _{DSS} (mA)	
SPAK	2SK494	22	-	0.1	20	6 to 40	O★
TO-92	2SK435	22	-	0.1	20	6 to 40	O★
MPAK	2SK1070	-	(-22)	50m	20	6 to 40	O★

Note: O: Mass production
 SPL: Samples available
 Δ: Can be mass produced (Delivery time: 3 months later)
 *: Provided to the limited customers
 ★: Large order device (Unit: 500 pcs x N)
 ☆: GaAs

GaAs Linear IC

• High Frequency Linear IC

Package	Type No.	Function and Characteristics	Status
MPAK-5	HA22022	LNA, V _{DD} = 3 V, I _{dd} = 3 mA typ, NF = 1.3 dB typ (f = 1.5 GHz), PG = 16 dB typ (f = 1.5 GHz)	O
	HA22033	LNA, V _{DD} = 2.7 V, I _{dd} = 1.7 mA typ, NF = 1.4 dB typ (f = 1.5 GHz), PG = 14 dB typ (f = 1.5 GHz)	O

Package	Type No.	Function and Characteristics	Status
MPAK-6	HA22040	PDC MIXER, CG = 10dBtyp, NF = 45 dB typ (V _{cc} = 2.7 V, I _b = 6 mA, f = 1.5 GHz)	O
TNP-16BV	HA22052	CDMA/LNA+MIXER, V _{DD} = 2.8 V, I _{dd} = 20 mA, f = 894 MHz	O

High Frequency Power MOS FET

• High Frequency Power Amplification

Package	Type No.	Ratings		Characteristics				Status
		V _{DSS} (V)	I _D (A)	P _{out} (W) typ				
				f (MHz)	P _{in} (W)	V _{DD} (V)		
RFPK-F	2SK3174A	60	16	270	860	14	28	SPL
	2SK3464	60	14	180	1482	10	28	Δ
	2SK3540	60	20	390	860	24	28	Δ
	2SK3545	60	20	260	2140	20	28	SPL
RFPK-G	2SK3175A	60	8	135	860	7	28	SPL
	2SK3465	60	7	90	1482	5	28	Δ

Package	Type No.	Ratings		Characteristics				Status
		V _{DSS} (V)	I _D (A)	P _{out} (dBm) min				
				f (MHz)	P _{in} (dBm)	V _{DD} (V)		
UPAK	2SK3391	17	0.3	32	836	14	13.7	O
RP8P	2SK3390	17	1	38	836	21	13.7	O

Overseas Sales Only

Notice: These products are for overseas sales only.

Please contact: HISEM Design Center
HITACHI Semiconductor (Malaysia) Sdn. Bhd.
TEL: (60)(4)-6438121

• General Amplification (Small Signal Transistors)

Package	Type No.	Ratings		Characteristics		Status
		V _{CEO} (V)	I _C (A)	hFE	V _{CE(sat)} (V) max	
TO-92	H945	50	0.2	135 to 600	0.25	★
	H8050	20	0.7	20 to 240	0.5	★
	H8550	-20	-0.7	60 to 240	-0.5	★
	H9012	-20	-0.5	64 to 250	-1.5	★ ^{CBT}
	H9013	20	0.5	64 to 250	1.5	★ ^{CBT}
	H9014	30	0.1	100 to 1000	0.5	★ ^{CBT}
	H9015	-30	-0.1	100 to 1000	-0.5	★ ^{CBT}
	HIT5417	20	0.03	39 to 198	-	★
	HIT8050	20	0.7	20 to 240	0.5	★
	HIT8550	-20	-0.7	60 to 240	-0.5	★
	HIT9012	-20	-0.5	64 to 250	-1.5	★
	HIT9013	20	0.5	64 to 250	1.5	★
	HIT9014	30	0.1	100 to 1000	0.5	★
	HIT9015	-30	-0.1	100 to 1000	-0.5	★
	TO-92 MOD	HIN5697	450	0.1	40 to 240	0.5
HIT5609		20	1.0	60 to 240	0.5	★
HIT5610		-20	-1.0	60 to 240	-0.5	★

• High Frequency Amplification (Small Signal Transistors)

Package	Type No.	Ratings		Characteristics			Status
		V _{CEO} (V)	I _C (A)	f _r (GHz) typ	NF (dB) typ	C _{ob} (pF) max	
TO-92	HIT9011	20	0.1	-	-	-	★
	HIT9016	20	20 m	-	-	-	★

Note: ★: Large order device (Unit: 500 pcs x N)
^{CBT}: Center Base Type

Power Transistors

• General Amplification

Package	Type No.	Ratings		Characteristics		Status
		V _{CEO} (V)	I _C (A)	h _{FE}	V _{CE(sat)} (V) max	
DPAK	2SB1407(L)/(S)	-35	-2.5	60 to 320	-1.0	O
	2SB1409(L)/(S)	-160	-1.5	60 to 200	-1.0	O
	2SD2121(L)/(S)	35	2.5	60 to 320	1.0	O
	2SD2122(L)/(S)	120	1.5	60 to 200	1.0	*
	2SD2123(L)/(S)	160	1.5	60 to 200	1.0	O

Package	Type No.	Ratings		Characteristics		Status
		V _{CEO} (V)	I _C (A)	h _{FE}	V _{CE(sat)} (V) max	
TO-220 AB	2SB857	-50	-4.0	60 to 320	-1.0	O
	2SB858	-60	-4.0	60 to 320	-1.0	O
	2SB859	-80	-4.0	60 to 200	-2.0	O
	2SB860	-100	-4.0	50 to 250	-1.0	O
	2SB861	-150	-2.0	60 to 200	-3.0	O
	2SD1133	50	4.0	60 to 320	1.0	O
	2SD1134	60	4.0	60 to 320	1.0	O
	2SD1135	80	4.0	60 to 200	2.0	O

• General Switching

Package	Type No.	Ratings			Characteristics		Status
		V _{CEO} (V)	V _{CB0} (V _{CEs}) (V)	I _C (A)	V _{CE} (sat) (V) max	t _r (μs) max	
DPAK	2SC4499(L)/(S)	400	500	0.5	1.0	1.0	O
	2SD2115(L)/(S)	60	150	2.0	0.8	0.6	O
TO-220 AB	2SB566(K)	-50	-70	-40	-1.0	0.5 typ	O
	2SB566A(K)	-60	-70	-40	-1.0	0.5 typ	O
	2SC2612	400	500	3.0	1.0	1.0	O
	2SC2613	400	500	5.0	1.0	1.0	O
	2SC2816	400	500	5.0	1.0	0.5	O
	2SC2898	400	500	8.0	1.0	0.8	O
	2SC2979	800	900	3.0	1.0	0.8	O
	2SC4913	2000	2000	20 m	5.0	-	O
	2SC5273	1300	1300	0.03	5.0	-	O
	2SD476(K)	50	70	4.0	1.0	0.5 typ	O
	2SD476A(K)	60	70	4.0	1.0	0.5 typ	O

Package	Type No.	Ratings			Characteristics		Status
		V _{CEO} (V)	V _{CB0} (V _{CEs}) (V)	I _C (A)	V _{CE} (sat) (V) max	t _r (μs) max	
TO-220 AB	2SD1137	100	100	4.0	1.0	-	O
	2SD1138	150	200	2.0	3.0	-	O
	2SD1163	120	300	7.0	2.0	0.5	O
	2SD1163A	150	350	7.0	1.0	0.5	O
	2SD1527	1000	-	0.5	5.0	-	O
TO-220 FM	2SB1392	-60	-70	-4.0	-1.0	-	O
	2SB1530	-150	-200	-2.0	-3.0	-	Δ
	2SC5022	1500	1500	20 m	5.0	-	O
	2SD2107	60	70	4.0	1.0	-	O
	2SD2337	150	200	2.0	3.0	-	O
TO-3P	2SC3336	400	500	15	1.0	0.5	O
	2SC3365	400	500	10	1.0	1.0	O

• General Switching (Darlington Transistors)

Package	Type No.	Ratings		Characteristics		Status
		V _{CEO} (V)	I _C (A)	h _{FE}	t _{off} (μs) typ	
DPAK	2SC4500(L)/(S)	60	1.0	From 2 k	0.6	O
	2SD2124(L)/(S)	120	1.5	2 k to 30 k	2.0	O
TO-220 AB	2SB727(K)	-120	-6.0	1 k to 20 k	3.0	O
	2SB791(K)	-120	-8.0	1 k to 20 k	3.1	O
	2SB955(K)	-120	-10	1 k to 20 k	4.0	O
	2SB1091	-60	-8.0	1 k to 20 k	3.0	O
	2SB1103	-60	-8.0	1 k to 20 k	4.0	O
	2SC1881(K)	60	3.0	From 1 k	5.0	O
	2SD768(K)	120	6.0	1 k to 20 k	3.0	O
	2SD970(K)	120	8.0	1 k to 20 k	6.5	O
	2SD1113(K)	300	6.0	From 500	23	O
	2SD1126(K)	120	10	1 k to 20 k	8.0	O
	2SD1606	120	6.0	1 k to 20 k	9.0	O
	2SD1976	300	6.0	From 500	16.0	O

Package	Type No.	Ratings		Characteristics		Status
		V _{CEO} (V)	I _C (A)	h _{FE}	t _{off} (μs) typ	
TO-220 FM	2SB1389	-60	-4.0	1 k to 20 k	5.0	O
	2SB1390	-60	-8.0	1 k to 20 k	4.0	O
	2SB1391	-120	-8.0	1 k to 20 k	3.1	O
	2SB1399	-120	-10	1 k to 20 k	4.0	O
	2SB1400	-120	-6.0	1 k to 20 k	3.0	O
	2SD2101	200	10	From 1500	11.5	O
	2SD2104	120	8.0	1 k to 20 k	6.5	O
	2SD2106	120	6.0	1 k to 20 k	3.0	O
	2SD1559	100	20	1 k to 20 k	12.0	O
TO-3P	2SB1032(K)	-120	-10	1 k to 20 k	4.0	O
	2SB1079	-100	-20	1 k to 20 k	3.5	O
	2SB1494	-120	-25	2 k to 20 k	10	O
	2SD1436(K)	120	10	1 k to 20 k	4.0	O

Note: O: Mass production

SPL: Samples available

Δ: Can be mass produced (Delivery time: 3 months later)

*: Provided to the limited customers

★: Large order device (Unit: 500 pcs x N)

Power MOS FET

•General Switching

Package	Type No.	Ratings		Characteristics			Ciss (pF) typ	Status
		Vdss (V)	Id (A)	Rds(ON) (Ω) max				
				4 V (5 V)	10 V (2.5 V)			
TO-92	2SK1336	60	0.3	2.5	1.7	33	Δ★	
	2SK1337	100	0.3	6.5	4.5	35	Δ★	
TO-92 MOD	2SJ386	-30	-3.0	0.8	0.4	177	O★	
	2SJ483	-30	-5.0	0.17	0.11	630	Δ★	
	2SJ496	-60	-5	0.24	0.16	600	O★	
	2SK975	60	1.5	0.55	0.4	140	O★	
	2SK2085	100	1	1.35	0.9	130	Δ★	
	2SK2734	30	5	0.08	0.055	550	Δ★	
	2SK2851	60	5	0.1	0.07	500	O★	
	2SK3446	150	1	1.95	(2.5)	95	Δ★	
	2SK3447	150	1	2.5	1.95	85	Δ★	
	H7P1001MD	-100	-1.1	1.1	0.8	400	SPL	
	MPAK	2SJ399	-30	-0.2	5.0	3.0	1.1	O★
2SJ451▼		-20	-0.2	3.5	(9)	2.4	O★	
2SJ452▼		-50	-0.2	7.0	(12)	1.1	*★	
2SJ486▼		-30	-0.3	0.65	(1.2)	45	O★	
2SK2373		30	0.2	2.5	1.4	17.8	O★	
2SK2569▼		50	0.2	2.6	(5)	14	O★	
2SK2570▼		20	0.2	1.1	(2.2)	45	O★	
2SK2802▼		30	0.5	0.28	(0.5)	14	*★	
2SK2980▼		30	1.0	0.28	(0.5)	155	O★	
2SK3000		40	1	0.5	0.3	14	O★	
2SJ186		-200	-0.5	-	12	75	O★	
UPAK	2SJ244▼	-12	-2.0	0.5*	(0.9)	130	O★	
	2SJ278	-60	-1.0	1.2	0.83	160	O★	
	2SJ317▼	-12	-2.0	0.35	0.7 (-2.2V)	63	O★	
	2SJ361▼	-20	-2.0	-	(1.5)	3.2	*★	
	2SJ484	-30	-2.0	0.45	0.23	230	O★	
	2SJ517▼	-20	-2.0	0.24	(0.43)	320	O★	
	2SJ518	-60	-2.0	0.63	0.46	220	Δ★	
	2SK1334	200	1.0	-	3.8	80	O★	
	2SK1579▼	12	2.0	0.35	0.7 (2.2V)	110	O★	
	2SK1697	60	0.5	2.5	1.7	33	O★	
	2SK1698	100	0.3	6.5	4.5	35	*★	
	2SK1764	60	2.0	0.6	0.45	140	O★	
	2SK1772	30	1.0	0.85	0.6	30	O★	
	2SK2247	30	2.0	0.45	0.35	177	*★	
	2SK2315▼	60	2.0	0.45	0.6 (3V)	173	O★	
	2SK2788	60	2.0	0.25	0.16	180	O★	
	2SK2978▼	20	2.5	0.12	(0.2)	260	Δ★	
	DPAK	2SJ130(L)/(S)	-300	-1.0	-	8.5	235	O
		2SJ181(L)/(S)	-600	-0.5	-	25	220	O
		2SJ319(L)/(S)	-200	-3.0	-	2.3	330	O
		2SJ387(L)/(S)▼	-20	-10	0.07	(0.11)	1170	O
2SJ506(L)/(S)		-30	-10	0.18	0.085	630	O	
2SJ527(L)/(S)		-60	-5	0.8	0.4	220	O	
2SJ528(L)/(S)		-60	-7	0.37	0.22	400	O	
2SJ529(L)/(S)		-60	-10	0.24	0.16	580	O	
2SJ530(L)/(S)		-60	-15	0.16	0.1	850	O	
2SK1151(L)/(S)		450	1.5	-	5.5	160	O	
2SK1152(L)/(S)		500	1.5	-	6	160	O	
2SK1254(L)/(S)		120	3.0	0.55	0.4	420	O	
2SK1299(L)/(S)		100	3.0	0.45	0.35	400	*	
2SK1335(L)/(S)		200	3.0	-	0.8	380	*	
2SK1838(L)/(S)		250	1.0	-	8	60	O	
2SK1880(L)/(S)		600	1.5	-	8	250	O	
2SK2059(L)/(S)		600	3.0	-	5	295	Δ	
2SK2084(L)/(S)		20	7.0	0.075	0.053	800	O	
2SK2329(L)/(S)▼		30	10	0.04	(0.06)	1250	O	
2SK2735(L)/(S)		30	20	0.05	0.028	750	O	
2SK2796(L)/(S)		60	5	0.25	0.16	180	O	
2SK2869(L)/(S)		60	20	0.07	0.045	740	O	
2SK2925(L)/(S)		60	10	0.16	0.08	350	O	
2SK2926(L)/(S)		60	15	0.11	0.055	500	O	
2SK3147(L)/(S)		100	5	0.17	0.13	420	O	
2SK3274(L)/(S)		30	30	0.03	0.013	1500	O	

Package	Type No.	Ratings		Characteristics			Ciss (pF) typ	Status
		Vdss (V)	Id (A)	Rds(ON) (Ω) max				
				4 V (5 V)	10 V (2.5 V)			
DPAK	H5N2004DL/DS	200	8	-	0.48	450	O	
	H5N2005DL/DS	200	6	-	0.65	300	O	
	H5N2504DL/DS	250	7	0.67	0.63	570	O	
	H5N2505DL/DS	250	5	-	0.89	300	O	
	H5N2508DL/DS	250	7	-	0.63	450	O	
	H5N2510DL/DS	250	5	0.97	0.89	390	O	
	H5N5006DL/DS	500	3	-	3.0	365	O	
	H7P1002DL/DS	-100	-15	0.15	0.105	2600	SPL	
	TO-220 AB	2SJ221	-100	-20	0.22	0.16	1800	O
		2SJ247	-100	-8.0	0.45	0.3	880	O
2SJ539		-60	-10	0.36	0.21	400	O	
2SJ540		-60	-12	0.23	0.15	580	O	
2SJ541		-60	-15	0.155	0.095	850	O	
2SJ542		-60	-18	0.11	0.065	1300	O	
2SJ543		-60	-20	0.095	0.055	1750	O	
2SJ544		-60	-30	0.055	0.037	2500	O	
2SK740		150	10	-	0.15	1200	O	
2SK1153		450	3.0	-	2.8	330	O	
2SK1154		500	3.0	-	3	330	O	
2SK1155		450	5.0	-	1.4	640	O	
2SK1156		500	5.0	-	1.5	640	O	
2SK1157		450	7.0	-	0.8	1050	O	
2SK1158		500	7.0	-	0.9	1050	O	
2SK1159		450	8.0	-	0.7	1150	O	
2SK1160		500	8.0	-	0.8	1150	O	
2SK1300		100	10	0.35	0.25	525	O	
2SK1301		100	15	0.18	0.13	860	O	
2SK1302		100	20	0.12	0.085	1300	O	
2SK1338		900	2.0	-	7	425	O	
2SK1400		300	7.0	-	0.7	635	O	
2SK1400A		350	7.0	-	0.8	635	O	
2SK1402		600	4.0	-	2.4	600	O	
2SK1402A		650	4.0	-	2.6	600	O	
2SK1667		250	7.0	-	0.55	690	O	
2SK1761		250	12	-	0.35	1100	O	
2SK1807		900	4.0	-	4	740	O	
2SK1809		600	5.0	-	1.5	1000	O	
2SK2328		650	7.0	-	1.4	1180	O	
2SK2408▲		500	7	-	0.9	1100	O	
2SK2590		200	7	-	0.45	700	O	
2SK2800		60	40	0.04	0.02	1500	O	
2SK2927		60	10	0.15	0.075	350	O	
2SK2928		60	15	0.105	0.052	500	O	
2SK2929		60	25	0.07	0.034	740	O	
2SK2930		60	35	0.05	0.026	1100	Δ	
2SK2931		60	45	0.025	0.013	2200	O	
2SK2959		30	50	0.018	0.01	2000	O	
2SK3069		60	75	0.012	0.0075	7100	O	
2SK3080	30	30	0.05	0.028	750	Δ		
2SK3081	30	45	0.025	0.014	1570	O		
2SK3136	40	75	0.010	0.0058	6800	O		
2SK3141	30	75	0.0085	0.005	6800	O		
2SK3149	100	20	0.085	0.060	840	Δ		
2SK3154	150	15	0.15	0.13	850	O		
2SK3156	150	20	0.08	0.07	1750	O		
2SK3158	150	30	0.063	0.045	2600	Δ		
2SK3214	200	10	0.19	0.17	1100	Δ		
2SK3215	200	8	0.55	0.40	410	Δ		
2SK3228	80	75	0.012	0.0075	9800	O		
2SK3418	60	85	0.009	0.0055	9770	Δ		
H7N0203AB	20	90	0.0051	0.003	6800	O		
H7N0307AB	30	60	0.0115	0.0058	2500	Δ		
H7N0308AB	30	70	0.0085	0.0048	3350	Δ		
H7N0312AB	30	85	0.0058	0.0033	6900	Δ		
H7N1004AB	100	30	0.045	0.035	2800	O		

Power MOS FET

• General Switching

Package	Type No.	Ratings		Characteristics			Status	
		Vdss (V)	ID (A)	Rds(ON) (Ω) max		Ciss (pF) typ		
				4 V (4.5 V)	10 V (2.5 V)			
TO-220 C/FM	2SJ471	-30	-30	0.06	0.035	1700	O	
	2SJ531	-60	-18	0.11	0.065	1300	O	
	2SJ532	-60	-20	0.095	0.055	1750	O	
	2SJ533	-60	-30	0.055	0.037	2500	O	
	2SJ545	-60	-12	0.23	0.15	580	O	
	2SJ546	-60	-15	0.155	0.095	850	O	
	2SK2114	450	5.0	-	1.4	640	O	
	2SK2116	450	7.0	-	0.8	1050	O	
	2SK2117	500	7.0	-	0.9	1050	O	
	2SK2118	600	5.0	-	1.5	1000	Δ	
	2SK2144	600	3.0	-	5	295	Δ	
	2SK2423	450	7	-	0.7	1150	*	
	2SK2425	250	7	-	0.55	690	O	
	2SK2426	250	12	-	0.35	1100	O	
	2SK2431	450	3.0	-	2.8	330	O	
	2SK2529	60	50	0.016	0.01	3550	O	
	2SK2725	500	5	-	1.6	630	O	
	2SK2726	500	7	-	0.95	1100	O	
	2SK2736	30	30	0.05	0.028	750	O	
	2SK2737	30	45	0.025	0.014	1570	O	
	2SK2738	60	40	0.04	0.02	1500	O	
	2SK2932	60	10	0.15	0.075	350	O	
	2SK2933	60	15	0.105	0.052	500	O	
	2SK2934	60	25	0.07	0.034	740	O	
	2SK2935	60	35	0.05	0.026	1100	O	
	2SK2936	60	45	0.025	0.013	2200	O	
	2SK2956	30	50	0.018	0.01	2000	O	
	2SK3140	60	60	0.012	0.0075	7100	O	
	2SK3142	30	60	0.0085	0.005	6800	O	
	2SK3229	80	60	0.012	0.0075	9800	O	
	2SK3233	500	5	-	1.5	580	O	
	2SK3234	500	8	-	0.85	970	O	
	H5N2502CF	250	18	-	0.105	2300	SPL	
	H7N0308CF	30	60	0.0085	0.0048	3350	O	
	TO-220 FM	2SJ222	-100	-20	0.22	0.16	1800	O
		2SJ248	-100	-8.0	0.45	0.3	880	O
		2SJ350	-120	-6.0	0.9	0.7	900	O
		2SJ410	-200	-6	-	0.85	920	Δ
		2SJ504	-60	-20	0.095	0.055	1750	O
		2SJ526	-60	-12	0.23	0.15	580	O
		2SJ534	-60	-18	0.11	0.065	1300	O
		2SJ535	-60	-30	0.055	0.037	2500	O
2SJ547		-60	-10	0.36	0.21	400	O	
2SJ548		-60	-15	0.155	0.095	850	O	
2SK1305		100	10	0.35	0.25	525	O	
2SK1306		100	15	0.18	0.13	860	O	
2SK1307		100	20	0.12	0.085	1300	O	
2SK1318		120	20	0.16	0.12	1300	O	
2SK1404		600	5.0	-	1.5	1000	O	
2SK1566		450	7.0	-	0.8	1050	O	
2SK1567		500	7.0	-	0.9	1050	O	
2SK1572		600	3.0	-	5	295	O	
2SK1626		450	5.0	-	1.4	640	O	
2SK1627		500	5.0	-	1.5	640	O	
2SK1637		600	4.0	-	2.4	600	O	
2SK1668		250	7.0	-	0.55	690	O	
2SK1762		250	12	-	0.35	1100	O	
2SK1808		900	4.0	-	4	740	O	
2SK1862		450	3.0	-	2.8	330	O	
2SK1863		500	3.0	-	3	330	O	
2SK1957		200	7.0	-	0.45	700	O	
2SK2202		120	7.0	0.55	0.4	420	O	
2SK2212		200	10	-	0.3	1000	O	
2SK2422		650	4.0	-	2.6	600	Δ	
2SK2937		60	25	0.07	0.034	740	O	
2SK3148		100	20	0.085	0.060	840	O	
2SK3152		120	10	0.17	0.13	580	O	
2SK3153		120	15	0.11	0.085	830	Δ	
2SK3155		150	15	0.15	0.13	850	O	
2SK3157		150	20	0.08	0.07	1750	O	
2SK3160		200	10	0.19	0.17	1100	O	
2SK3162		200	20	0.085	0.075	2420	O	
2SK3177		200	15	0.125	0.115	1550	O	
2SK3209		150	25	0.063	0.045	2600	O	
2SK3212		100	5	0.17	0.13	420	Δ	
H5N5001FM		500	5	-	1.5	580	O	
H5N5006FM	500	3	-	3.0	365	O		
H7N1004FM	100	25	(0.045)	0.035	2800	O		
H7N1005FM	100	12	(0.155)	0.11	830	O		
LDBPAK	2SJ479(L)/(S)	-30	-30	0.06	0.035	1700	O	
	2SJ505(L)/(S)	-60	-50	0.036	0.022	4100	O	
	2SJ549(L)/(S)	-60	-12	0.23	0.15	580	O	
	2SJ550(L)/(S)	-60	-15	0.155	0.095	850	O	
	2SJ551(L)/(S)	-60	-18	0.11	0.065	1300	O	
	2SJ552(L)/(S)	-60	-20	0.095	0.055	1750	O	
	2SJ553(L)/(S)	-60	-30	0.055	0.037	2500	O	
	2SK1313(L)/(S)	450	5.0	-	1.4	640	O	
	2SK1314(L)/(S)	500	5.0	-	1.5	640	O	
	2SK1315(L)/(S)	450	8.0	-	0.7	1150	O	
	2SK1316(L)/(S)	500	8.0	-	0.8	1150	O	
	2SK1528(L)/(S)	900	4.0	-	4	740	O	

Package	Type No.	Ratings		Characteristics			Status	
		Vdss (V)	ID (A)	Rds(ON) (Ω) max		Ciss (pF) typ		
				4 V (4.5 V)	10 V (2.5 V)			
LDBPAK	2SK1540(L)/(S)	450	7.0	-	0.8	1050	O	
	2SK1620(L)/(S)	150	10	-	0.15	1200	O	
	2SK1623(L)/(S)	100	20	0.12	0.085	1300	O	
	2SK1636(L)/(S)	250	15	-	0.27	1250	O	
	2SK1647(L)/(S)	900	2.0	-	7	425	O	
	2SK2553(L)/(S)	60	50	0.016	0.01	3550	O	
	2SK2684(L)/(S)	30	30	0.05	0.028	750	O	
	2SK2885(L)/(S)	30	45	0.025	0.014	1570	O	
	2SK2912(L)/(S)	60	40	0.04	0.02	1500	O	
	2SK2938(L)/(S)	60	25	0.07	0.034	740	O	
	2SK2939(L)/(S)	60	35	0.05	0.026	1100	O	
	2SK2940(L)/(S)	60	45	0.025	0.013	2200	O	
	2SK2957(L)/(S)	30	50	0.018	0.01	2000	O	
	2SK2958(L)/(S)	30	75	0.014	0.007	4100	O	
	2SK3070(L)/(S)	40	75	0.010	0.0058	6800	O	
	2SK3082(L)/(S)	60	10	0.15	0.075	350	O	
	2SK3134(L)/(S)	30	75	0.0085	0.005	6800	O	
	2SK3135(L)/(S)	60	75	0.012	0.0075	7100	O	
	2SK3150(L)/(S)	100	20	0.085	0.060	840	O	
	2SK3161(L)/(S)	200	15	0.125	0.115	1550	O	
	2SK3203(L)/(S)	30	45	0.028	0.014	1200	O	
	2SK3210(L)/(S)	150	30	0.063	0.045	2600	O	
	2SK3211(L)/(S)	200	25	0.085	0.075	2420	O	
	2SK3461(L)/(S)	60	85	0.009	0.0055	9770	O	
	H5N2001LD/L/S/LM	200	20	-	0.125	1350	Δ	
	H5N2501LD/L/S/LM	250	18	-	0.18	1350	SPL	
	H5N5006LD/L/S/LM	500	3.5	-	3.0	365	Δ	
	H7N0307LD/L/S/LM	30	60	0.0115	0.0058	2500	O	
	H7N0308LD/L/S/LM	30	70	0.0085	0.0048	3350	Δ	
	H7N0310LD/L/S/LM	30	30	(0.019)	0.01	1400	Δ	
	H7N0311LD/L/S/LM	30	45	(0.016)	0.0088	1650	Δ	
	H7N0312LD/L/S/LM	30	85	0.0058	0.0033	6900	Δ	
	H7N0602LD/L/S/LM	60	85	(0.009)	0.0052	9000	SPL	
	H7N1002LD/L/S/LM	100	75	(0.015)	0.01	9700	O	
	H7N1004LD/L/S/LM	100	30	(0.045)	0.035	2800	O	
	H7N1005LD/L/S/LM	100	15	(0.155)	0.11	830	O	
	TO-3P	2SJ217	-60	-45	0.06	0.042	3800	O
		2SJ554	-60	-45	0.055	0.037	2500	O
		2SJ555	-60	-60	0.036	0.022	4100	O
		2SK1161	450	10	-	0.8	1050	O
		2SK1162	500	10	-	0.9	1050	O
		2SK1163	450	11	-	0.7	1150	O
2SK1164		500	11	-	0.8	1150	O	
2SK1165		450	12	-	0.55	1450	O	
2SK1166		500	12	-	0.6	1450	O	
2SK1167		450	15	-	0.36	2050	O	
2SK1168		500	15	-	0.4	2050	O	
2SK1169		450	20	-	0.25	2800	O	
2SK1170		500	20	-	0.27	2800	O	
2SK1303		100	30	0.09	0.06	1750	O	
2SK1304		100	40	0.04	0.03	3500	O	
2SK1317		1500	2.5	-	12	990	O	
2SK1339		900	3.0	-	7	410	O	
2SK1340		900	5.0	-	4	760	O	
2SK1341		900	6.0	-	3	980	O	
2SK1342		900	8.0	-	1.6	1730	O	
2SK1401		300	15	-	0.35	1250	O	
2SK1401A		350	15	-	0.4	1250	O	
2SK1403		600	8.0	-	1.3	1180	O	
2SK1403A		650	8.0	-	1.4	1180	O	
2SK1515▲		450	10	-	0.8	1050	O	
2SK1516▲		500	10	-	0.9	1050	O	
2SK1517▲		450	20	-	0.25	2800	O	
2SK1518▲		500	20	-	0.27	2800	O	
2SK1573		600	15	-	0.5	3150	O	
2SK1669▲		250	30	-	0.095	3100	O	
2SK1671		250	30	-	0.095	3100	O	
2SK1773		1000	5.0	-	2	1700	O	
2SK1835		1500	4.0	-	7	1700	O	
2SK1933		900	10	-	1.2	2620	O	
2SK1934		1000	8.0	-	1.6	2690	O	
2SK1968		600	12	-	0.88	1800	O	
2SK2007▲		250	20	-	0.15	2350	O	
2SK2075		250	20	-	0.13	2400	Δ	
2SK2096		60	45	0.028	0.022	3780	O	
2SK2554		60	75	0.01	0.006	7700	O	
2SK2568		500	12	-	0.6	1560	O	
2SK2586		60	60	0.016	0.01	3550	O	
2SK2727	500	10	-	0.95	1100	O		
2SK2728	500	18	-	0.45	2150	O		
2SK2729	500	20	-	0.29	3300	O		
2SK2730	500	25	-	0.24	3500	O		
2SK2828	700	12	-	1.2	1850	O		
2SK2955	60	45	0.025	0.013	2200	O		
2SK3151	100	50	0.025	0.015	4000	O		
2SK3159	150	50	0.042	0.030	4060	Δ		
2SK3163	60	75	0.012	0.0075	7100	O		
2SK3235	500	15	-	0.4	1920	O		
2SK3419	60	90	0.009	0.0055	9770	O		
H5N2003P	200	60	-	0.042	5150	Δ		
H5N2503P	250	50	-	0.055	5150	O		

Power MOS FET

•General Switching

Package	Type No.	Ratings		Characteristics			Status	
		Vdss (V)	ID (A)	Rds(ON) (Ω) max		Ciss (pF) typ		
				4 V (4.5 V)	10 V (2.5 V)			
TO-3P	H5N2507P▲	250	50	-	0.055	5000	Δ	
	H5N2509P	250	30	-	0.069	3600	O	
	H5N3003P	300	40	-	0.069	5150	O	
	H5N3004P	300	25	-	0.093	3600	O	
	H5N3008P▲	300	40	-	0.069	5150	Δ	
	H5N5007P	500	25	-	0.225	3900	O	
	H5N6001P	600	20	-	0.38	4640	O	
	TO-3P FM	2SJ216	-60	-35	0.09	0.06	2400	O
		2SJ218	-60	-45	0.06	0.042	3800	O
		2SK1298	60	40	0.025	0.018	3600	O
2SK1328		450	12	-	0.55	1450	O	
2SK1329		500	12	-	0.6	1450	O	
2SK1405▲		600	15	-	0.5	2660	O	
2SK1666		60	45	0.035	0.02	3950	Δ	
2SK1670▲		250	30	-	0.095	3100	O	
2SK1775		900	8.0	-	1.6	1730	O	
2SK1832		500	10	-	0.9	1050	O	
2SK1859		900	6.0	-	3	980	O	
2SK2008▲		250	20	-	0.15	2350	O	
2SK2203		60	50	0.013	0.01	8330	O	
2SK2225		1500	2.0	-	12	990	O	
H5N2301PF		230	25	-	0.085	2300	O	
H5N2509PF		250	30	-	0.069	3600	Δ	
TO-3PL		2SK1519▲	450	30	-	0.15	5800	O
		2SK1520▲	500	30	-	0.16	5800	O
	2SK1521▲	450	50	-	0.1	8700	O	
	2SK1522▲	500	50	-	0.11	8700	O	
	2SK1526	450	40	-	0.15	5800	O	
	2SK1527	500	40	-	0.16	5800	O	
	2SK1628	450	30	-	0.25	2800	O	
	2SK1629	500	30	-	0.27	2800	O	
	2SK1836	450	50	-	0.1	8150	O	
	2SK1837	500	50	-	0.11	8150	O	
	2SK1947▲	250	50	-	0.06	5810	O	
	2SK1948	250	50	-	0.06	5830	O	
	2SK1971	500	35	-	0.23	8800	O	
	2SK2393	1500	8	-	2.8	4370	O	
	H5N5004PL▲	500	50	-	0.11	7630	Δ	
	H5N5011PL	500	50	-	0.115	7700	Δ	
	FP-8DA JEDEC SOP-8	HAT1016R(D)	-30	-4.5	0.18	0.09	660	O
		HAT1020R	-30	-5	0.13	0.07	860	O
		HAT1021R▼	-20	-5.5	0.06	(0.085)	1200	O
		HAT1023R▼	-20	-7	0.04	(0.06)	2250	O
HAT1024R(D)		-30	-3.5	0.34	0.16	350	O	
HAT1025R▼(D)		-20	-4.5	0.095	(0.15)	860	O	
HAT1026R		-30	-7	0.065	0.037	1700	O	
HAT1029R▼(D)		-20	-3.5	0.14	(0.23)	465	Δ	
HAT1036R		-30	-12	0.034	0.014	4200	O	
HAT1038R/RJ(D)		-60	-3.5	0.23	0.15	600	O	
HAT1048R		-30	-16	(0.0135)	0.007	5700	O	
HAT1054R▼(D)		-20	-6	(0.03)	(0.05)	1550	O	
HAT2016R(D)		30	6.5	0.08	0.045	560	O	
HAT2019R▼		30	8	0.027	(0.037)	920	*	
HAT2020R		30	8	0.05	0.028	780	*	
HAT2022R		30	11	0.025	0.015	1450	O	
HAT2024R(D)		30	5.5	0.11	0.065	310	O	
HAT2025R		30	8	(0.05)	0.026	660	O	
HAT2026R▼		20	11	0.015	(0.021)	1760	O	
HAT2027R▼(D)		20	7	0.038	(0.053)	720	O	
HAT2028R/RJ(D)		60	4	0.16	0.10	280	O	
HAT2029R▼(D)		28	7.5	0.033	(0.043)	780	O	
HAT2033R/RJ		60	7	0.053	0.038	740	O	
HAT2036R		30	12	(0.03)	0.015	1200	O	
HAT2038R/RJ(D)		60	5	0.058	0.084	520	O	
HAT2040R		30	15	0.013	0.008	4400	O	
HAT2043R(D)		30	8	0.029	0.022	1170	O	
HAT2044R▼		30	15	(0.009)	(0.013)	3420	Δ	
HAT2058R(D)		100	4	0.18	0.145	420	O	
HAT2064R		30	16	(0.01)	0.0063	2200	O	
HAT2068R		30	14	(0.016)	0.009	1650	O	
HAT2070R		30	12	(0.022)	0.014	1400	O	
HAT2071R		30	10	(0.036)	0.020	740	O	
HAT2077R		200	3	-	0.235	830	O	
HAT2080R		250	1.7	-	0.85	300	O	
HAT2085R		200	2	-	0.64	300	O	
HAT2087R		250	2.5	-	0.31	830	O	

Package	Type No.	Ratings		Characteristics			Status
		Vdss (V)	ID (A)	Rds(ON) (Ω) max		Ciss (pF) typ	
				4 V (4.5 V)	10 V (2.5 V)		
FP-8DA JEDEC SOP-8	HAT2088R	200	2	-	0.44	450	O
	HAT2089R	250	2	-	0.6	450	O
	HAT2092R(D)	30	11	(0.025)	0.016	1400	Δ
	HAT2093R(D)	30	9	(0.039)	0.023	750	O
	HAT2095R	150	2.5	-	0.42	300	SPL
	HAT2103R(D)	30	4.5	(0.13)	0.065	220	O
	HAT2108R(D)	28	11	0.015	(0.022)	2200	O
	HAT3004R (Nch/Pch)	30/-30	5.5/-3.5	0.11/0.34	0.065/0.16	310/350	O
	HAT3006R (Nch/Pch)	30/-30	6.5/-4.5	0.08/0.18	0.045/0.09	560/660	O
	HAT3008R/RJ (Nch/Pch)	60/-60	5/-3.5	0.084/0.23	0.058/0.15	520/600	O
	HAT3010R (Nch/Pch)	60	6/-5	0.045/0.13	0.032/0.076	1050/1350	O
	HAT3017R (Nch/Pch)	30/-30	3.8/-2.6	(0.185/0.45)	0.18/0.115	150/210	SPL
	HAT3019R (Nch/Pch)	100/-100	3.5/-2.3	(0.16/0.50)	0.115/0.30	815/930	SPL
	TTP-8D (TSSOP-8)	HAT1031T▼(D)	-20	-2.5	0.16	(0.28)	390
HAT1033T▼		-20	-3.5	0.063	(0.09)	970	O
HAT1041T▼		-20	-6	0.026	(0.045)	1850	O
HAT2031T▼(D)		20	3.5	0.07	(0.098)	300	Δ
HAT2037T▼		28	5.5	0.028	(0.038)	780	O
HAT2042T▼(D)		28	5	0.034	(0.044)	510	O
HAT2045T▼(D)		28	6	0.026	(0.037)	650	O
HAT2050T(D)		100	1	1	0.75	90	O
HAT2051T▼(D)		30	1	0.2	(0.3)	155	O
HAT2052T▼(D)		28	5	0.034	(0.044)	510	O
HAT2080T	250	1.2	-	0.85	300	O	
HAT2085T	200	1.4	-	0.64	300	O	
TSOP-6	HAT1043M▼	-20	-4.4	(0.065)	(0.110)	750	O
	HAT1044M	-30	-4.5	(0.105)	0.060	600	O
	HAT1053M▼	-20	-5.5	(0.048)	(0.074)	1240	*
	HAT1063M(D)▼	-12	-1	(0.15)	(0.265)	385	O
	HAT2053M▼	20	6.1	(0.033)	(0.048)	570	O
	HAT2054M	30	6.3	(0.052)	0.031	620	O
LFPACK	HAT1072H	-30	-40	(0.0077)	0.0045	9100	O
	HAT2096H	30	40	(0.0088)	0.0053	2200	O
	HAT2099H	30	50	(0.0073)	0.0037	4750	O
	HAT2116H	30	35	(0.015)	0.0077	1650	O
	HAT2119H	250	5	-	0.63	450	O
	HAT2129H	40	30	-	7.5	3300	Δ
	HAT2132H	200	6	-	0.45	450	SPL
	HAT2134H	20	60	5.8	2.9	4500	Δ
	HAT2137H	40	45	-	4.8	6200	Δ
	HAT2139H	40	20	-	11.5	2000	Δ
	HAT2140H	100	25	-	16	6350	Δ
	HAT2141H	100	15	-	27.5	3200	Δ
	HAT2142H	100	10	-	44	2000	Δ
	HAT2143H	30	40	11.5	6.1	2450	O
	HAT2159H	20	55	(0.0049)	0.003	5200	SPL
	HAT2160H	20	60	(0.0041)	0.0026	7750	SPL
	HAT2161H	20	50	(0.0057)	0.0034	4200	SPL
	HAT2162H	20	40	(0.0086)	0.005	2800	SPL
	HAT2163H	20	30	(0.0125)	0.0071	1780	SPL
	HAT2164H	30	60	(0.0044)	0.0031	7600	SPL
	HAT2165H	30	55	(0.0053)	0.0033	5200	SPL
	HAT2166H	30	45	(0.0061)	0.0038	4200	SPL
	HAT2167H	30	40	(0.0093)	0.0055	2800	SPL
	HAT2168H	30	30	(0.0135)	0.0079	1780	SPL
	HAT2169H	40	50	-	0.0043	4350	SPL
	HAT2170H	40	45	-	0.0056	3600	SPL
HAT2171H	40	40	-	0.0068	2280	SPL	
HAT2172H	40	30	-	0.0098	1445	SPL	
HAT2173H	100	25	-	0.015	4350	SPL	
HAT2174H	100	20	-	0.027	2280	SPL	
HAT2175H	100	15	-	0.042	1445	SPL	
CMFPAK-6	HAT1058C▼	-20	-3	(0.074)	(0.126)	770	O
	HAT1059C▼	-12	-3	(0.064)	(0.088)	500	O
	HAT1068C▼	-20	-3	(0.065)	(0.096)	1010	SPL
CMPAK-6 SOP-8	HAT1069C▼	-12	-3	(0.059)	(0.077)	1310	SPL
	HAT1062G▼	-20	-0.3	(0.57)	(0.96)	95	O
	HAT1047R/RJ	-30	-14	(0.025)	0.012	3500	O
HAT2114R/RJ	60	6	(0.05)	0.032	1000	O	

Note: O: Mass Production
 SPL: Samples available
 Δ: Can be mass produced (Delivery time: 3 months later)
 *: Provided to the limited customers

▼: 2.5 V RDS (ON)(Ω)
 ▲: Built-in high speed diode
 (D): Dual chip
 Samples of HAT series is available in type numbers HATxxxxWS.

Power MOS FET

•General Amplification

Package	Type No.	Ratings		Characteristics			Status
		V _{DSS} (V _{DSSX}) (V)	I _D (A)	lyfsl (S) typ	V _D (sat) (V _D (on)) (V) max	C _{iss} (pF) typ	
TO-220 AB	2SJ76	(-140)	-0.5	0.035	-2	120	O
	2SJ77	(-160)	-0.5	0.035	-2	120	O
	2SJ78	(-180)	-0.5	0.035	-2	120	O
	2SJ79	(-200)	-0.5	0.035	-2	120	O
	2SK213	(140)	0.5	0.04	2	90	O
	2SK214	(160)	0.5	0.04	2	90	O
	2SK215	(180)	0.5	0.04	2	90	O
	2SK216	(200)	0.5	0.04	2	90	O
TO-3P	2SJ160	(-120)	-7	1.0	-12	900	O

Package	Type No.	Ratings		Characteristics			Status
		V _{DSS} (V _{DSSX}) (V)	I _D (A)	lyfsl (S) typ	V _D (sat) (V _D (on)) (V) max	C _{iss} (pF) typ	
TO-3P	2SJ161	(-140)	-7	1.0	-12	900	O
	2SJ162	(-160)	-7	1.0	-12	900	O
	2SJ351	(-180)	-8	1.0	-12	800	O
	2SJ352	(-200)	-8	1.0	-12	800	O
	2SK1056	(120)	7	1.0	12	600	O
	2SK1057	(140)	7	1.0	12	600	O
	2SK1058	(160)	7	1.0	12	600	O
	2SK2220	(180)	8	1.0	12	600	O
	2SK2221	(200)	8	1.0	12	600	O

•Arrays

Package	Type No.	Ratings		Characteristics			Status	
		V _{DSS} (V)	I _D (A)	R _{DS(ON)} (Ω) max		C _{iss} (pF) typ		
				4 V	10 V (2.5 V)			
SP-10	4AK15	60	8.0	0.095	0.07	860	O	
	4AK16	60	5.0	0.25	0.18	400	O	
	4AK17	60	10	0.065	0.045	1400	O	
	4AK18	60	2.5	0.53	0.38	240	O	
	4AK19	120	5.0	0.6	0.5	-	O	
	4AK20	100	5.0	0.35	0.25	525	O	
	4AK21	100	8.0	0.125	0.09	1300	O	
	4AK25	60	1.5	0.6	0.45	140	O	
	4AK27	60	5	0.2	0.15	390	*	
	4AM11 (Nch/Pch)	60/ -60	5.0/ -5.0	0.24/ 0.27	0.17/ 0.2	400/ 900	O	
	4AM12 (Nch/Pch)	60/ -60	8.0/ -8.0	0.11/ 0.18	0.075/ 0.09	860/ 1400	O	
	4AM13 (Nch/Pch)	60/ -60	3.0/ -3.0	0.5/ 0.55	0.35/ 0.4	240/ 425	O	
	SP-12	4AJ11	-60	8.0	0.17	0.13	1400	O
		4AK26	60	8.0	0.075	0.06	1400	O

Package	Type No.	Ratings		Characteristics			Status
		V _{DSS} (V)	I _D (A)	R _{DS(ON)} (Ω) max		C _{iss} (pF) typ	
				4 V	10 V (2.5 V)		
SP-12	4AM16 (Nch/Pch)	60/ -60	8.0/ -8.0	0.24/ 0.27	0.17/ 0.2	400/ 850	*
	6AM11 (Nch/Pch)	60/ -60	5.0/ -5.0	0.24/ 0.27	0.17/ 0.2	400/ 900	O
SP-12TA	4AK23	100	5.0	0.25	0.25	400	*
	4AM14 (Nch/Pch)	60/ -60	8.0/ -8.0	0.24/ 0.27	0.17/ 0.2	400/ 900	O
	4AM15 (Nch/Pch)	200/ -200	4.0/ -4.0	-/ -	0.5/ 0.7	600/ 800	O
	6AM12 (Nch/Pch)	60/ -60	7.0/ -7.0	0.24/ 0.27	0.17/ 0.2	400/ 900	O
	6AM13 (Nch/Pch)	60/ -60	10/ -10	0.11/ 0.18	0.075/ 0.12	860/ 1400	O
	6AM14 (Nch/Pch)▼	60/ -60	7.0/ -7.0	0.2/ 0.16	(0.5)/ (0.3)	500/ 1450	O
	6AM15 (Nch/Pch)	60/ -60	10/ -10	0.115/ 0.165	0.06/ 0.105	500/ 850	O

•Thermal FET

Package	Type No.	Ratings		Characteristics			Status
		V _{DSS} (V)	I _D (A)	R _{DS(ON)} (Ω) max		T _{sd} (°C) typ	
				4 V (5 V)	10 V		
TO-220 AB	HAF1001	-60	-15	0.13	0.09	175	O
	HAF2001	60	20	0.065	0.043	175	O
	HAF2014	60	40	0.033	0.02	175	O
TO-220 FM	HAF2002	60	20	0.065	0.043	175	O
	HAF2005	60	40	0.033	0.02	175	O
	HAF2008	60	20	0.065	0.044	175	SPL
LDBPAK	HAF1002(L)/(S)	-60	-15	0.13	0.09	175	O
	HAF1009(L)/(S)	-60	-40	0.045	0.027	175	SPL

Package	Type No.	Ratings		Characteristics			Status
		V _{DSS} (V)	I _D (A)	R _{DS(ON)} (Ω) max		T _{sd} (°C) typ	
				4 V (5 V)	10 V		
LDBPAK	HAF2011(L)/(S)	60	40	0.033	0.02	175	O
	HAF2012(L)/(S)	60	20	0.065	0.043	175	O
	HAF2017(L)/(S)	60	20	0.065	0.043	175	SPL
	HAF2021(L)/(S)	60	50	0.015	0.012	175	O
DPAK	HAF1004(L)/(S)	-60	-5	0.34	0.2	175	SPL
	HAF2007(L)/(S)	60	5	0.12	0.075	175	O
SOP-8	HAF2015RJ	60	2	(0.2)	0.16	175	SPL

IGBT

•General Switching

Package	Type No.	Ratings		Characteristics		Status
		V _{CE} (V)	I _C (A)	V _{CE} (sat) (V) typ	t _r (μs) typ	
TO-220 AB	2SH11	600	10	2.6	0.3	*
	2SH12	600	15	2.6	0.3	*
	2SH13	600	20	2.6	0.3	*
	2SH17	600	12	2.0	2.0	*
	2SH18	600	18	2.0	2.0	*
	2SH19	600	24	2.0	2.0	*
	2SH26	600	10	2.1	0.3	Δ
	2SH27	600	15	2.1	0.3	Δ
	2SH28	600	20	2.1	0.3	Δ
	2SH29	600	30	2.1	0.3	Δ

Package	Type No.	Ratings		Characteristics		Status
		V _{CE} (V)	I _C (A)	V _{CE} (sat) (V) typ	t _r (μs) typ	
LDBPAK	GN2550V4 LD/LS	250	50	1.6	0.12	SPL
	GN6020V4 LD/LS	600	20	2.1	0.1	O
	GN6030V4 LD/LS	600	30	2.1	0.1	O
TO-3P	2SH14	600	30	2.6	0.3	Δ
	2SH15	600	50	2.6	0.3	Δ
	2SH20	600	36	2.0	2.0	Δ
	2SH21	600	50	2.0	2.0	*
	2SH30	600	50	2.1	0.3	Δ
	2SH31	600	75	2.1	0.3	Δ
TO-3PL	2SH16	600	75	2.6	0.3	O
	2SH22	600	75	2.0	2.0	*

RF Power Modules

•High Frequency Amplification

Part No.	Package	Main Characteristics				Status
		f (MHz)	Pin (dBm)	Pout Min (dBm)	VDD (V)	
PF08122B	RF-K-8	880 to 915 1710 to 1785	0	35 32.5	3.5	O
PF08123B	RF-K-8	880 to 915 1710 to 1785 1850 to 1910	0	35 32.5 32	3.5	O

Note: O: Mass Production
 SPL: Samples available
 Δ: Can be mass produced (Delivery time: 3 months later)
 *: Provided to the limited customers

Standard Taping Specifications

•Packing Unit

Package	Name Note)	Packing Unit
TO-92 TO-92 MOD SPAK	Type No. Grade TZ	2500 Pcs/Box
MPAK MPAK-4 CMPAK CMPAK-4 CMPAK-6 MPAK-5 SMPAK	Type No. Marking TL/TR Type No. Marking UL/UR	3000 Pcs/Reel 12000 Pcs/Reel
MFPAK	Type No. Marking TL/TR	9000 Pcs/Reel
SMFPAK-6	Type No. Marking TL/TR	5000 Pcs/Reel
EMFPAK-6	Type No. Marking TL/TR	5000 Pcs/Reel
MPAK-5 MPAK-6 (High frequency linear IC)	Type No. Marking EL	3000 Pcs/Reel
TSOP-6 CMFPAK-6	Type No. EL	3000 Pcs/Reel

Package	Name Note)	Packing Unit
TSSOP-14 (High frequency linear IC)	Type No. EL	1000 Pcs/Reel
FP-8DA (JEDEC,SOP-8)	Type No. EL	2500 Pcs/Reel
LFPAK	Type No. EL	2500 Pcs/Reel
TTP-8D (TSSOP-8)	Type No. EL	3000 Pcs/Reel
DPAK S	Type No. TL/TR	3000 Pcs/Reel
LDPAK S	Type No. TL/TR	1000 Pcs/Reel
UPAK	Type No. Marking TL/TR	1000 Pcs/Reel
	Type No. Marking UL/UR	4000 Pcs/Reel
RP-8P	Type No. Marking TB	1000 Pcs/Reel
	Type No. Marking UB	4000 Pcs/Reel

Note: Lead (Pb) free: + “-E”

Discrete Semiconductor Data Book

•Printing

	Document Name	Publication Date	Document No.
English	Hitachi Power MOS FET No.1	2001.3	ADE-408-002G
	Hitachi Power MOS FET No.2	2001.3	ADE-408-008G
	Hitachi Power MOS FET No.3	2001.3	ADE-408-009G
	Hitachi Small Signal Transistor	2001.3	ADE-408-004E
	Hitachi Bipolar Power Transistor	2000.9	ADE-408-005C
	Hitachi RF Power Module	2002.9	ADE-408-007D

Package

SPAK (JEITA:SC-72)	TO-92 (JEITA:SC-43A)	TO-92MOD (JEITA:SC-51)	EMFPAK-6	MFPAK (1408 flat)	SMFPAK-6	SMPAK (JEITA:SC-75A)	CMPAK (JEITA:SC-70)	CMPAK-4 (JEITA:SC-82AB)
CMFPAK-6	CMPAK-6	MPAK (JEITA:SC-59A)	MPAK-4 (JEITA:SC-61AA)	MPAK-5	MPAK-6	TSOP-6	MSP-18	
TSSOP-14	TNP-16BV	UPAK (JEITA:SC-62)	RP8P	DPAK (L)	DPAK (S)	FP-8DA (JEDEC SOP-8)	TTP-8D (TSSOP-8)	TO-220AB
TO-220C-FM	TO-220FM	TO-3P	TO-3PFM	TO-3PL	LDBAK-(L)	LDBAK-(S)	LDBAK	
TRANSISTOR ARRAY			RF POWER TRANSISTER					
SP-10	SP-12	SP-12TA	RFPK-F	RFPK-G				
RF POWER MODULE								
RF-K	RF-K-4	RF-K2	RF-K-8	RF-K1	RF-K1-10	RF-O	RF-O-12	

Note: These packages are not full size.

Surface Mount Type Marking

•MPAK

Type No.	Marking
2SA1052	MB, MC, MD
2SA1121	SB, SC, SD
2SA1122	CC, CD, CE
2SA1171	PD, PE
2SA1484	IRD, IRE
2SA1566	JID, JIE
2SA1617	VIB, VIC
2SB831	BB, BC
2SB1691	WL-
2SC2462	LB, LC, LD
2SC2463	DD, DE, DF
2SC2618	RB, RC, RD
2SC2619	FA, FB, FC
2SC2620	QB, QC
2SC2732	EC
2SC2734	GC
2SC2735	JC
2SC2736	TC
2SC2776	VA, VB, VC
2SC3127	ID-
2SC3513	IS-
2SC3793	IP-
2SC4050	KID, KIE
2SC4196	QI-
2SC4197	TI-
2SC4366	ZI-
2SC4591	XM-
2SC4680	XU-
2SC4702	XV-
2SC4964	YV-
2SC5049	YA-
2SC5050	YZ-
2SC5218	YK-
2SC5772	FR-
2SC5773	JR-
2SC5890	FS-
2SD1101	AB, AC
2SD1306	ND, NE
2SD2655	WM-
2SJ399	ZF-
2SJ451	ZK-
2SJ452	ZM-
2SJ486	ZU-
2SJ574	BP
2SJ575	AP
2SK217	ZC, ZD, ZE
2SK360	IGD, IGE, IGF
2SK1070	PIB, PIC, PID, PIE
2SK2373	ZE-
2SK2569	ZN-
2SK2570	ZL-
2SK2802	ZV-
2SK2980	ZZ-
2SK3000	ZY-
2SK3287	AN
2SK3288	EN
2SK3290	BN
BRA114EMP	EG
BRA123EMP	JG
BRA124EMP	CG
BRA143EMP	GG
BRA144EMP	AG
BRC114EMP	FG
BRC123EMP	KG
BRC124EMP	DG
BRC143EMP	HG
BRC144EMP	BG

•MPAK-4

Type No.	Marking
2SC3957	GIA, GIB
2SC4926	YD-
2SC5080	ZD-
2SC5545	ZS-
3SK295	ZQ-
3SK297	ZP-
3SK300	ZR-
3SK319	YB-
BB101M	AU-
BB102M	BU-
BB301M	AW-
BB302M	BW-
BB304M	DW-
BB305M	EW-
BB501M	AS-
BB502M	BS-
BB503M	CS-
BB504M	DS-
BIC702M	BZ-
BIC703M	CZ-

•MPAK-5

Type No.	Marking
HA22022	GDA (A: Date code)
HA22033	GEA (A: Date code)

•MPAK-6

Type No.	Marking
HA22040	GH

•SMPAK

Type No.	Marking
2SC5137	YA-
2SC5139	YZ-
2SC5247	ZD-
2SC5629	XZ-
2SJ587	DP
2SK3349	DN
H5N0301SM	GN
H5P0301SM	GP

•UPAK

Type No.	Marking
2SB1001	BH, BJ
2SB1002	CH, CJ
2SB1025	DH, DJ, DK
2SB1026	DL, DM
2SB1028	EL, EM
2SB1048	BT
2SC3380	AS
2SC4807	ER
2SC4988	FR
2SC5631	JR
2SD1367	BA, BB, BC
2SD1368	CA, CB, CC
2SD1418	DA, DB, DC
2SD1419	DD, DE

•UPAK

Type No.	Marking
2SD1421	ED, EE
2SD1470	AT
2SD1472	CT
2SD1974	ES
2SJ186	CY
2SJ244	JY
2SJ278	MY
2SJ317	NY
2SJ361	RY
2SJ484	WY
2SJ517	YY
2SJ518	AZ
2SK1334	BY
2SK1579	DY
2SK1697	EY
2SK1698	FY
2SK1764	KY
2SK1772	HY
2SK2247	QY
2SK2315	TY
2SK2788	VY
2SK2978	ZY
2SK3391	JX

•RP8P

Type No.	Marking
2SK3390	IX

•CMPAK

Type No.	Marking
2SA2080	MB, MC, MD
2SA2081	CC, CD, CE
2SC4260	TI-
2SC4261	QI-
2SC4262	IP-
2SC4264	GC
2SC4265	JC
2SC4463	HC
2SC4537	IS-
2SC4593	XM-
2SC4784	YA-
2SC4899	YH-
2SC4901	YK-
2SC4965	YV-
2SC5051	YZ-
2SC5850	LB, LC, LD
2SC5851	FA, FB, FC
2SJ576	AP
2SJ586	CP
2SK1215	IGD, IGE, IGF
2SK3289	AN
2SK3348	CN
2SK3378	EN
BRA114ECM	EG
BRA123ECM	JG
BRA124ECM	CG
BRA143ECM	GG
BRA144ECM	AG
BRC114ECM	FG
BRC123ECM	KG
BRC124ECM	DG
BRC143ECM	HG
BRC144ECM	BG

•CMPAK-4

Type No.	Marking
2SC4995	YD-
2SC5081	ZD-
2SC5593	XH-
2SC5594	XP-
2SC5623	WH-
2SC5624	VH-
2SC5820	WU-
2SC5894	WY-
2SK2685	ZT-
3SK296	ZQ-
3SK298	ZP-
3SK309	XV-
3SK317	ZR-
3SK318	YB-
BB101C	AU-
BB102C	BU-
BB301C	AW-
BB302C	BW-
BB304C	DW-
BB305C	EW-
BB501C	AS-
BB502C	BS-
BB503C	CS-
BB504C	DS-
BIC702C	BZ-
BIC703C	CZ-

•CMPAK-6

Type No.	Marking
HAT1062G	062
HAT1066G	66
HAT2106G	06
HAT3016G	16
TBB1002	BM
TBB1004	DM
TBB1005	EM
TBB1008	HM

•MFPAK

Type No.	Marking
2SC5543	YA-
2SC5544	YZ-
2SC5554	YH-
2SC5555	YK-
2SC5555	ZD-
2SC5628	XZ-
2SC5700	WB-
2SC5702	ZS-
2SC5757	WE-
2SC5758	WF-
2SC5812	WG-
2SC5872	WZ-
2SC5907	WK-
H5N0201MF	DN
H5N0301MF	GN
H5P0201MF	DP
H5P0301MF	GP

•CMFPAK-6

Type No.	Marking
HAT1058C	058
HAT1059C	059
HAT1068C	068
HAT1069C	069

•SMFPAK-6

Type No.	Marking
HTT1115S	EK
HTT1213S	CK

•EMFPAK-6

Type No.	Marking
HTT1115E	F
HTT1213E	E