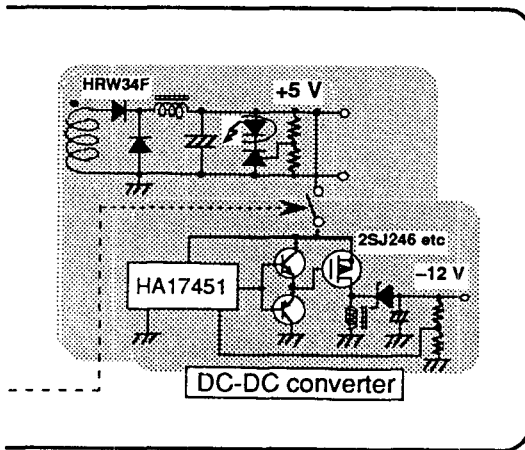


- **Multiple Outputs.** There may be multiple outputs (positive and negative) that may differ in their voltage and current ratings. Such outputs may be isolated from each other.

Hitachi's range of devices offers these requirements. Common goals are to reduce power supply size, weight and improve their efficiency.

The following describes Hitachi's design concept with related recommended devices.



**Power MOSFET for Switching Power Supply (I)**

Classification	Input voltage	Commendation products					
		~10W	10~30W	30~50W	50~100W	100~200W	200W
Fly-back	AC 100 - 132 V	2SK579	2SK1153	2SK1155	2SK1159	2SK1163	2SK1169
		2SK580	2SK1154	2SK1156	2SK1160	2SK1164	2SK1170
		2SK1151	2SK1862	2SK1157	2SK1161	2SK1165	2SK1526
		2SK1152		2SK1158	2SK1162	2SK1166	2SK1527
				2SK1313	2SK1163	2SK1167	2SK1629
				2SK1314	2SK1206	2SK1168	2SK1836
				2SK1540	2SK1225	2SK1268	2SK1837
				2SK1541	2SK1315		
				2SK1626	2SK1316		
					2SK1328		
Forward	AC 200 - 264 V		2SK513	2SK513	2SK534	2SK684	2SK684
			2SK1199	2SK415	2SK695	2SK685	2SK685
			2SK1338	2SK1199	2SK696	2SK695	2SK1204
				2SK1200	2SK1202	2SK696	2SK1205
				2SK1201	2SK1203	2SK1203	2SK1342
					2SK1340	2SK1204	2SK1573
					2SK1341	2SK1205	2SK1770
					2SK1528	2SK1342	2SK1773

**Power MOSFET for Switching Power Supply (II)**

Classification	Input voltage	Commendation products					
		~10W	10~30W	30~50W	50~100W	100~200W	200W
DC-DC Converter	DC 5 -12V	2SJ182	2SJ175	2SJ214	2SJ220	2SJ217	2SK1297
		2SJ234	2SJ246	2SJ219	2SJ242	2SJ218	2SK1298
		2SK974	2SK970	2SK971	2SK972	2SK1296	2SK1665
		2SK975	2SK1093	2SK1094	2SK1095		
				2SK1648	2SK1622		
	DC24V	2SJ278	2SJ245	2SJ221	2SJ280	2SK622	2SK1304
		2SK430	2SJ279	2SJ222	2SJ297	2SK1303	
			2SK1299	2SJ296	2SK622		
			2SK1254	2SK740	2SK1302		
			2SK1949	2SK1301	2SK1307		
DC48V		2SK440	2SK741	2SK623	2SK623	2SK1670	
		2SK741	2SK1621	2SK1135		2SK1671	
		2SK1335	2SK1635	2SK1919		2SK1948	
			2SK1668				
			2SK1762				

**IGBTs for Switching Power Supply**

Package	Type Number	Absolute Maximum Ratings				Electrical Characteristics (typ)				
		V <sub>CEs</sub> (V)	V <sub>GES</sub> (V)	I <sub>c</sub> (A)	P <sub>c</sub> (W)	V <sub>CE</sub> (sat) (V)	I <sub>c</sub> (A)	V <sub>GE</sub> (V)	C <sub>ies</sub> (pF)	t <sub>off</sub> (μs)
TO-220AB	GN6015A	600	±20	15	60	3	15	15	1500	0.7
TO-3P	GN4530C	450	±20	30	150	3	30	12	2250	0.6
	GN6030C	600	±20	30	150	3	30	15	2250	0.7
	GN12015C	1200	±20	15	150	3.5	15	15	1800	0.7
TO-3PL	GN6050E	600	±20	50	200	3	50	15	3700	0.8
	GN6075E	600	±20	75	250	3	75	15	5450	0.8
	GN12030E	1200	±20	30	200	3.5	30	15	3600	0.7
	GN12050E	1200	±20	50	200	3.5	50	15	6000	0.8

Table 6 : DIII-L Series Typical Characteristics Cont'd

Package	Type Number	Absolute Maximum Ratings				Electrical Characteristics (typ.)							
		VDSS (V)	VGSS (V)	ID (A)	Pch* (W)	4V RDS(on)** (Ω)		10V RDS(on)** (Ω)		lyfsl (S)**	ton (ns)	toff (ns)	Ciss (pF)
						typ.	max.	typ.	max.				
TO-220AB	2SJ172	-60	±20	-10	40	0.18	0.25	0.13	0.18	6.5	73	275	900
	2SJ173			-15	50	0.13	0.17	0.09	0.11	9.5	135	380	1400
	2SJ174			-20	75	0.09	0.13	0.065	0.085	13	140	580	1850
	2SK970	60		10	30	0.17	0.22	0.12	0.15	6	60	230	400
	2SK971			15	40	0.075	0.095	0.055	0.065	12	80	300	860
	2SK972			25	50	0.05	0.06	0.033	0.04	20	145	450	1400
	2SK1296	100		30	75	0.03	0.04	0.024	0.028	27	145	615	2250
	2SK1300			10	40	0.25	0.35	0.2	0.25	7	65	240	525
	2SK1301			15	50	0.13	0.18	0.1	0.13	11	80	280	860
	2SK1302	-100		20	50	0.085	0.12	0.065	0.085	16	112	450	1300
	2SJ247			-8	40	0.3	0.45	0.25	0.3	5.5	59	225	880
	2SJ221	-20		75	0.15	0.22	0.12	0.16	12	130	490	1800	
TO-220FM	2SJ175	-60	±20	-10	25	0.18	0.25	0.13	0.18	6.5	73	275	900
	2SJ236			-10	25	0.18	0.25	0.13	0.18	0.5	-	-	900
	2SJ176			-15	30	0.13	0.17	0.09	0.11	9.5	135	380	1400
	2SJ177	-20		35	0.09	0.13	0.065	0.085	13	140	580	1850	
	2SK1253	30		30	35	0.035	0.045	0.025	0.03	22	155	700	1900
	2SK1093			10	20	0.17	0.22	0.12	0.15	6	60	230	400
	2SK1776			10	20	0.17	0.22	0.12	0.15	6	-	-	400
	2SK1094	60		15	25	0.075	0.095	0.055	0.065	12	80	300	860
	2SK1777			15	25	0.075	0.095	0.055	0.065	12	-	-	860
	2SK1095			25	30	0.05	0.06	0.033	0.04	20	145	450	1400
	2SK1305	100		10	25	0.25	0.35	0.2	0.25	7	65	240	525
	2SK1778			10	28	0.25	0.35	0.2	0.25	7	-	-	525
	2SK1306			15	30	0.13	0.18	0.1	0.13	11	80	280	860
	2SK1307	120		20	35	0.085	0.12	0.065	0.085	16	112	450	1300
	2SK1318			20	35	0.11	0.16	0.095	0.12	17	84	300	1300
	2SJ248	-100		-8	25	0.3	0.45	0.25	0.3	5.5	59	225	880
	2SJ222			-20	35	0.16	0.22	0.12	0.16	12	130	490	1800
	TO-3P	2SK1297		60	±20	40	100	0.02	0.025	0.015	0.018	35	200
2SK1514		40	125			0.035	0.055	0.024	0.03	28	170	620	2500
2SK1665		45	125			0.026	0.035	0.018	0.022	32	210	920	3950
2SJ215		-60	-35	125		0.07	0.09	0.045	0.06	18	195	780	2400
2SJ217			-45	150		0.045	0.06	0.033	0.042	25	265	1120	3800
2SK1303		100	30	100		0.06	0.09	0.05	0.06	22	135	585	1750
2SK1304			40	100		0.03	0.04	0.025	0.03	35	195	1030	3500
TO-3P-FM	2SK1298	60	±20	40	50	0.02	0.025	0.015	0.018	35	200	1050	3600
	2SK1666			45	60	0.026	0.035	0.018	0.022	32	210	920	3950
	2SJ216	-60		-35	50	0.07	0.09	0.045	0.06	18	195	780	2400
	2SJ218			-45	60	0.045	0.06	0.033	0.042	25	265	1120	3800

Notes :

\* : Value at Tc = 25°C

\*\* : Test condition R<sub>DS(on)</sub> : V<sub>GS</sub> = 4V, 10V, I<sub>D</sub> = 1/2 I<sub>D</sub> max (DC)

\*\*\* : High Electro-Static Breakdown Capability Series

lyfsl : V<sub>DS</sub> = 10V, I<sub>D</sub> = 1/2 I<sub>D</sub> max (DC)