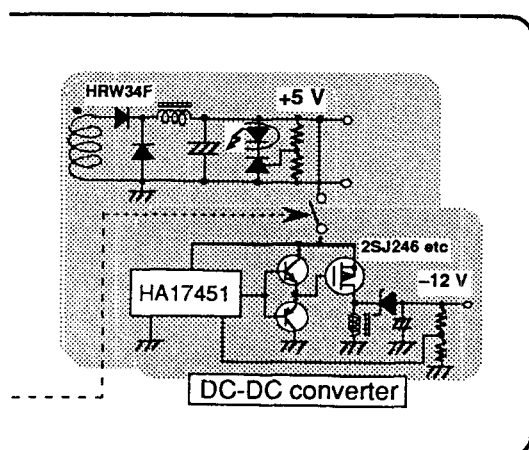


- **Multiple Outputs.** There may be multiple outputs (positive and negative) that may differ in their voltage and current ratings. Such outputs may be isolated from each other.

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 2SK580 2SK1151 2SK1152	2SK1153 2SK1154 2SK1862	2SK1155 2SK1156 2SK1157 2SK1158 2SK1313 2SK1314 2SK1540 2SK1541 2SK1626	2SK1159 2SK1160 2SK1161 2SK1162 2SK1163 2SK1206 2SK1225 2SK1315 2SK1316 2SK1328	2SK1163 2SK1164 2SK1165 2SK1166 2SK1167 2SK1168 2SK1268	2SK1169 2SK1170 2SK1526 2SK1527 2SK1629 2SK1836 2SK1837
			2SK513 2SK1199 2SK1338	2SK513 2SK415 2SK1199 2SK1200 2SK1201	2SK534 2SK695 2SK696 2SK1202 2SK1203 2SK1340 2SK1341 2SK1528	2SK684 2SK685 2SK695 2SK696 2SK1203 2SK1204 2SK1205 2SK1342	2SK684 2SK685 2SK1204 2SK1205 2SK1342 2SK1573 2SK1770 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 2SJ234 2SK974 2SK975	2SJ175 2SJ246 2SK970 2SK1093	2SJ214 2SJ219 2SK971 2SK1094 2SK1648	2SJ220 2SJ242 2SK972 2SK1095 2SK1622	2SJ217 2SJ218 2SK1296	2SK1297 2SK1298 2SK1665
	DC24V	2SJ278 2SK430	2SJ245 2SJ279 2SK1299 2SK1254 2SK1949	2SJ221 2SJ222 2SJ296 2SK740 2SK1301 2SK1306 2SK1620 2SK1918	2SJ280 2SJ297 2SK622 2SK1302 2SK1307 2SK1623	2SK622 2SK1303	2SK1304
	DC48V		2SK440 2SK741 2SK1335	2SK741 2SK1621 2SK1635 2SK1668 2SK1762	2SK623 2SK1135 2SK1919	2SK623	2SK1670 2SK1671 2SK1948

IGBTs for Switching Power Supply

Package	Type Number	Absolute Maximum Ratings				Electrical Characteristics (typ)				
		V _{CE} (V)	V _{GE} (V)	I _C (A)	P _C (W)	V _{CE} (sat) (V)	I _C (A)	V _{GE} (V)	C _{ies} (pF)	t _{off} (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.)							
		V _{DS} (V)	V _{GS} (V)	I _D (A)	P _{ch} * (W)	4V R _{DS(on)**} (Ω)		10V R _{DS(on)**} (Ω)		I _{yfs} (S) **	t _{on} (ns)	t _{off} (ns)	C _{iss} (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	30		-20	35	0.09	0.13	0.065	0.085	13	140	580	1850
	2SK1253			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	60		10	20	0.17	0.22	0.12	0.15	6	-	-	400
	2SK1094			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	100		25	30	0.05	0.06	0.033	0.04	20	145	450	1400
	2SK1305			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	120		15	30	0.13	0.18	0.1	0.13	11	80	280	860
	2SK1307			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	1050	3600
	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			30	100	0.06	0.09	0.05	0.06	22	135	585	1750
	2SK1304	100		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 T_c = 25°C** : Test condition R_{DS(on)} : V_{GS} = 4V, 10V, I_D = 1/2 I_D max (DC)

*** : High Electro-Static Breakdown Capability Series

I_{yfs} : V_{DS} = 10V, I_D = 1/2 I_D max (DC)