

Table 7 : DIII-H Series Typical Characteristics Cont'd

Package	Type Number	Absolute Maximum Ratings				Electrical Characteristics (typ.)					
		V _{DS} (V)	V _{GSS} (V)	I _D (A)	P _{ch} * (W)	R _{DS(on)} (Ω)		I _{yfsl} (S) **	t _{on} (ns)	t _{off} (ns)	C _{iss} (pF)
						typ.	max.				
TO-3P	2SK2007	250	± 30	20	100	0.12	0.15	14	155	290	2340
	2SK1669			30	125	0.075	0.095	20	215	420	3100
	2SK1671					0.075	0.095	20	215	380	3000
	2SK1401	300		8	100	0.25	0.35	9.5	95	155	1250
	2SK1401A	350		10		0.3	0.4	7	75	135	1050
	2SK1161	450				0.6	0.8				
	2SK1162	500				0.7	0.9				
	2SK1163	450				0.55	0.7	8	77	145	1150
	2SK1164	500				0.6	0.8				
	2SK1165	450				0.4	0.55	10	90	180	1450
	2SK1166	500				0.45	0.6				
	2SK1167	450				0.25	0.36	13	140	220	2050
	2SK1168	500				0.3	0.4				
	2SK1169	450		0.2	0.25	16	147	290	2800		
	2SK1170	500		0.22	0.27						
	2SK1515	450		10	100	0.6	0.8	7	80	150	1100
	2SK1516	500		20	120	0.7	0.9				
	2SK1517	450				0.2	0.25	16	165	345	3050
	2SK1518	500		0.22	0.27						
	2SK1403	600		8	100	0.9	1.3	6.5	65	150	1180
	2SK1403A	650		1	1.4						
	2SK1968	600		12	100	0.68	0.88	10	95	210	1800
	2SK1573			15	125	0.35	0.5	14	140	340	3150
	2SK1339			3	80	5	7	1.9	50	105	425
	2SK1340	900		5	100	3	4	3.2	85	180	740
	2SK1341			6		2	3	2.7	100	225	980
	2SK1342			8		1.2	1.6	5.5	160	315	1730
	2SK1933			10		150	0.9	1.2	7	170	455
2SK1773	5		100	1.5		2	5	135	345	1700	
2SK1934	1000		8	150		1.2	1.6	6	170	505	2690
TO-3P-FM	2SK2008	250	± 30	20	60	0.12	0.15	14	155	290	2340
	2SK1670			30	60	0.07	0.095	20	215	420	3100
	2SK1831			10	50	0.6	0.8	7	75	135	1050
	2SK1832	0.7		0.9							
	2SK1328	450		12	60	0.4	0.55	10	90	180	1450
	2SK1329	500		0.45	0.6						
	2SK1405	600		15	60	0.35	0.5	14	155	340	3150
	2SK1859	900		6	60	2	3	3.7	100	225	980
	2SK1775			8	60	1.2	1.6	5.5	160	315	1730
	2SK1947			50	200	0.047	0.055	30	345	620	5810
TO-3PL	2SK1948	250	± 30	50	200	0.047	0.055	30	330	620	5830
	2SK1519	450		30	200	0.11	0.15	25	235	615	5800
	2SK1520	500				0.12	0.16				
	2SK1521	450		50	250	0.08	0.1	35	335	850	8700
	2SK1522	500				0.085	0.11				
	2SK1628	450		30	200	0.2	0.25	20	172	300	2800
	2SK1629	500				0.22	0.27				
	2SK1971	500		35	200	0.19	0.23	24	220	450	4320
	2SK1526	450		40	250	0.11	0.15	30	235	580	5800
	2SK1527	500				0.12	0.16				
	2SK1836	450		50	250	0.08	0.1	35	330	770	8150
	2SK1837	500				0.085	0.11				
	2SK1371	450				± 30	20				
2SK1372	500	0.3	0.35								

Notes :

* : Value at T_c = 25°C

** : Test condition R_{DS(on)} : V_{GS} = 4V, 10V, I_D = 1/2 I_D max (DC)

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

□ : Built in high speed diode version

DIII-HF Series High Speed Devices

To improve switching losses for certain critical switching applications, Hitachi has introduced HF-Series with better built-in diode breakdown capability than the existing DIII-H series using life-time control technology.

The HF Series has built-in diodes which can be used as fast recovery diodes, FRD which means reducing switching losses sufficiently even for high-speed switching.

Table 8 : DIII-HF Series Typical Characteristics

Package	Type Number	Absolute Maximum Ratings				Electrical Characteristics			
		VDSS (V)	VGSS (V)	ID (A)	Pch (W)	10V RDS(on) (Ω)		VGSS(off) (V)	trr (ns)
						typ.	max.		
TO-3P	2SK2007	250	± 30	20	100	0.12	0.15	2 ~ 3	120
	2SK1669	250	± 30	30	125	0.075	0.095	2 ~ 3	90
	2SK1515	450	± 30	10	100	0.6	0.8	2 ~ 3	120
	2SK1516	500				0.7	0.9		
	2SK1517	450	± 30	20	120	0.2	0.25	2 ~ 3	120
	2SK1518	500				0.22	0.27		
TO-3PL	2SK1947	250	± 30	50	200	0.047	0.055	2 ~ 3	140
	2SK1519	450	± 30	30	200	0.11	0.15	2 ~ 3	120
	2SK1520	500				0.12	0.016		
	2SK1521	450	± 30	50	250	0.08	0.1	2 ~ 3	120
	2SK1522	500				0.085	0.11		
TO-3P-FM	2SK2008	250	± 30	20	60	0.12	0.15	2 ~ 3	120
	2SK1670	250	± 30	30	60	0.075	0.095	2 ~ 3	90
	2SK1405	600	± 30	15	60	0.35	0.5	2 ~ 3	140

DIII-H Series with High Electrostatic Breakdown Capability

One of the other key advantages of Hitachi Power MOSFETs has been including ESD protections with built-in gate to source back to back zener diodes from the DII-Series.

However, further improvements of gate electrostatic breakdown tolerance has been achieved with gate protection resistance insertion block.

Table 9 : DIII-L with Gate Protection Resistance

Type Number	Package	Absolute Maximum Ratings				Electrical Characteristics (typ.)						Non-Resistance Type	
		VDSS (V)	VGSS (V)	ID (A)	Pch (Tc=25°C) (W)	4V RDS(on)* (Ω)		10V RDS(on)* (Ω)		Id(off) (μ s)	If (μ s)		Rg** (Ω)
						typ.	max.	typ.	max.				
2SJ235	DPAK	-60	± 20	-3	20	0.4	0.55	0.28	0.4	16	8.2	7.25K	2SJ182
2SJ236	TO-220FM	-60	± 20	-10	25	0.23	0.3	0.13	0.18	11	6.2	3.3K	2SJ175
2SJ237				-15	30	0.13	0.17	0.09	0.11	20	11	3K	2SJ176
2SK1776				10	20	0.17	0.22	0.12	0.15	3.1	1.4	1.55K	2SK1093
2SK1777				15	25	0.075	0.095	0.055	0.065	3.2	1.5	870	2SK1094
2SK1778				10		0.25	0.35	0.2	0.25	2.6	0.75	880	2SK1305

Notes :

* : Test condition RDS(on) : VGS = 4V, 10V, ID = 1/2 ID max (DC)

** : Rg : Gate protection resistance value