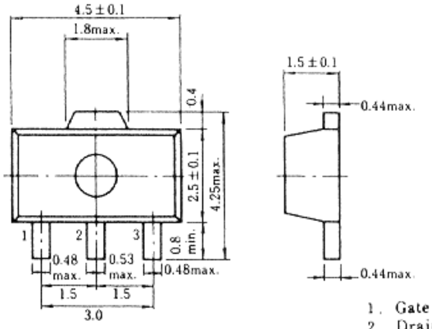
HITACHI

2SK1334

SILICON N-CHANNEL MOS FET
HIGH SPEED POWER SWITCHING

■ FEATURES

- Low On-Resistance
- High Speed Switching
- Low Drive Current
- No Secondary Breakdown
- Suitable for Switching Regulator and DC-DC Converter



(UPAK)

1. Gate
2. Drain
3. Source

(Dimensions in mm)

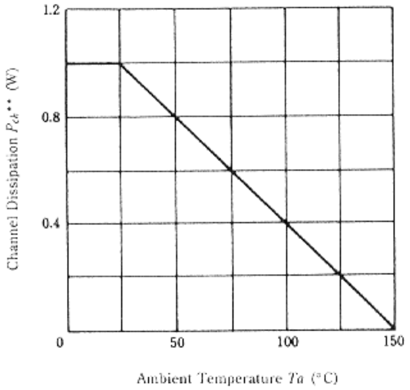
■ABSOLUTE MAXIMUM RATINGS ($Ta=25^\circ C$)

Item	Symbol	Rating	Unit
Drain-Source Voltage	V_{DSS}	200	V
Gate-Source Voltage	V_{GSS}	±20	V
Drain Current	I_D	1	A
Drain Peak Current	$I_{D(pulse)}$*	2	A
Body-Drain Diode Reverse Drain Current	I_{DR}	1	A
Channel Dissipation	P_{ch}**	1	W
Channel Temperature	T_{ch}	150	℃
Storage Temperature	T_{stg}	−55～+150	℃

* PW≦10μs, duty cycle≦1%

* * When using the alumina ceramic board (12.5×20×0.7mm)

POWER VS. TEMPERATURE DERATING



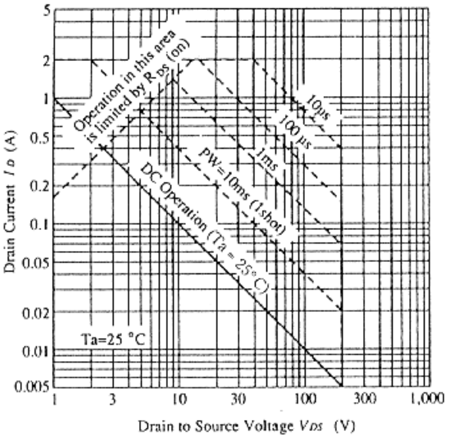
■ELECTRICAL CHARACTERISTICS ($Ta=25^\circ C$)

Item	Symbol	Test Condition	min.	typ.	max.	Unit
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	$I_D=10mA,\ V_{GS}=0$	200	—	—	V
Gate-Source Breakdown Voltage	$V_{(BR)GSS}$	$I_G=\pm100\mu A,\ V_{DS}=0$	±20	—	—	V
Gate-Source Leak Current	I_{GSS}	$V_{GS}=\pm16V,\ V_{DS}=0$	—	—	±10	μA
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS}=160V,\ V_{GS}=0$	—	—	50	μA
Gate-Source Cutoff Voltage	$V_{GS(off)}$	$I_D=1mA,\ V_{DS}=10V$	2.0	—	4.0	V
Static Drain-Source on State Resistance	$R_{DS(on)}$	$I_D=0.5A,\ V_{GS}=10V$*	—	2.5	3.8	Ω
		$I_D=2A,\ V_{GS}=10V$*	—	4.5	7.0	
Forward Transfer Admittance	$\lvert y_{fs}\rvert$	$I_D=0.5A,\ V_{DS}=10V$*	0.4	0.6	—	S
Input Capacitance	C_{iss}	$V_{DS}=10V,\ V_{GS}=0,\ f=1MHz$	—	80	—	pF
Output Capacitance	C_{oss}		—	40	—	pF
Reverse Transfer Capacitance	C_{rss}		—	7	—	pF
Turn-On Delay Time	$t_{d(on)}$	$I_D=0.5A,\ V_{GS}=10V,\ R_L=60\Omega$	—	5	—	ns
Rise Time	t_r		—	8	—	ns
Turn-Off Delay Time	$t_{d(off)}$		—	10	—	ns
Fall Time	t_f		—	7	—	ns
Body-Drain Diode Forward Voltage	V_{DF}	$I_F=1A,\ V_{GS}=0$	—	1.0	—	V
Body-Drain Diode Reverse Recovery Time	t_{rr}	$I_F=1A,\ V_{GS}=0$ $di_F/dt=50A/\mu s$	—	75	—	ns

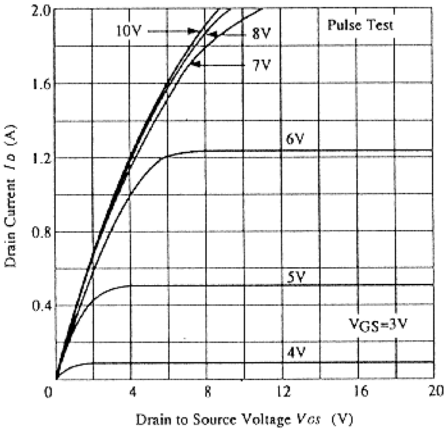
* Pulse Test

* * Marking for 2SK1334 is "BY".

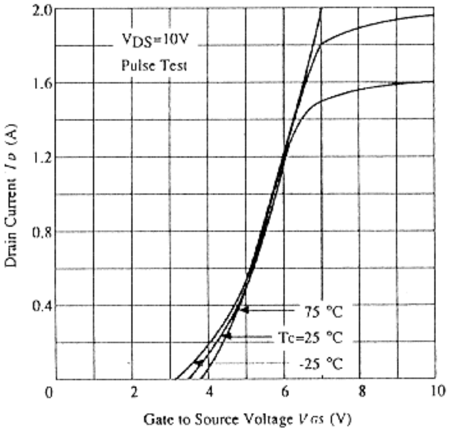
MAXIMUM SAFE OPERATION AREA



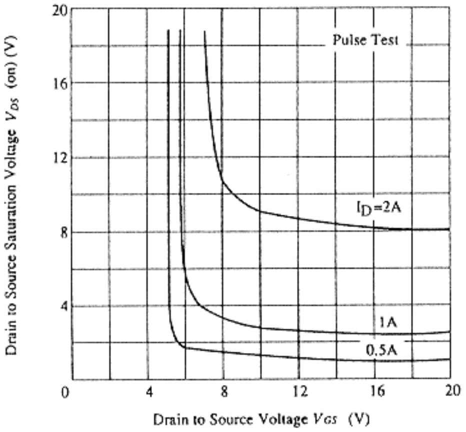
TYPICAL OUTPUT CHARACTERISTICS



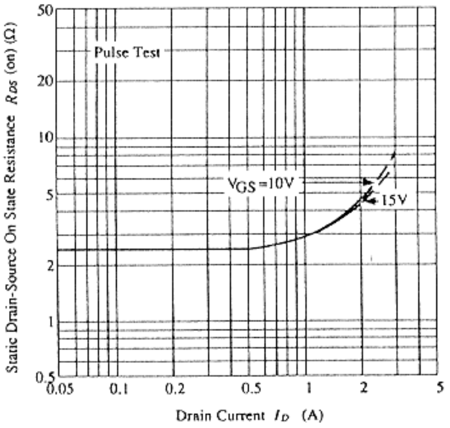
TYPICAL TRANSFER CHARACTERISTICS



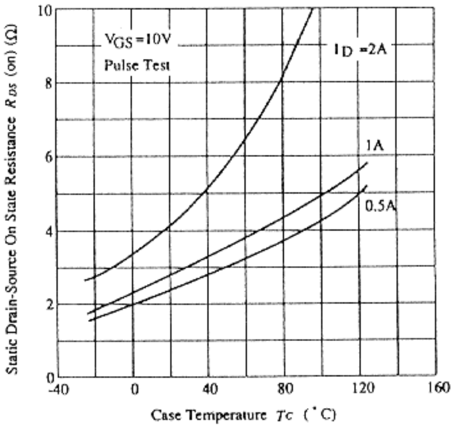
DRAIN-SOURCE SATURATION VOLTAGE VS. GATE-SOURCE VOLTAGE



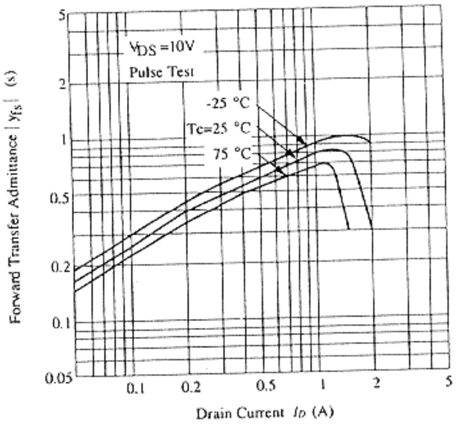
STATIC DRAIN-SOURCE ON STATE RESISTANCE VS. DRAIN CURRENT



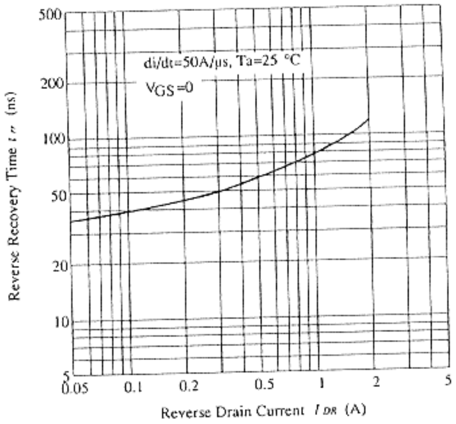
STATIC DRAIN-SOURCE ON STATE RESISTANCE VS. TEMPERATURE



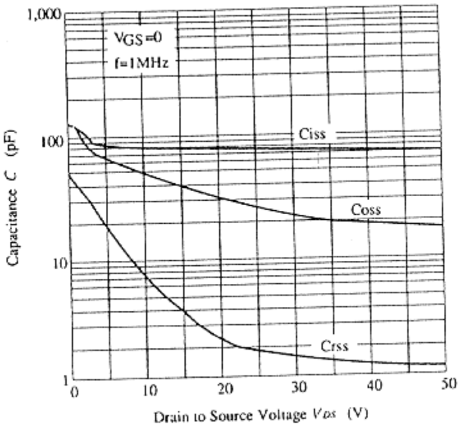
FORWARD TRANSFER ADMITTANCE VS. DRAIN CURRENT



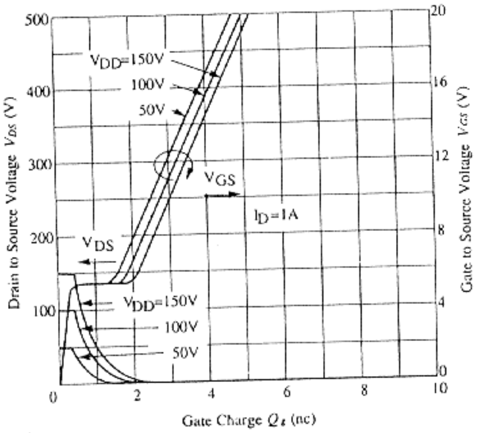
REVERSE RECOVERY TIME VS. REVERSE DRAIN CURRENT



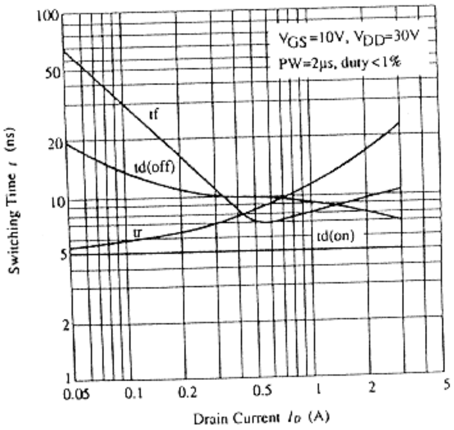
TYPICAL CAPACITANCE VS. DRAIN-SOURCE VOLTAGE



DYNAMIC INPUT CHARACTERISTICS



SWITCHING CHARACTERISTICS



REVERSE DRAIN CURRENT VS. SOURCE TO DRAIN VOLTAGE