HITACHI

2SJ317

Silicon P Channel MOSFET

Application

High speed power switching
Low voltage operation

Features

- Very low on–resistance
- High speed switching
- Suitable for camera or VTR motor drive circuit, power switch, solenoid drive and etc.

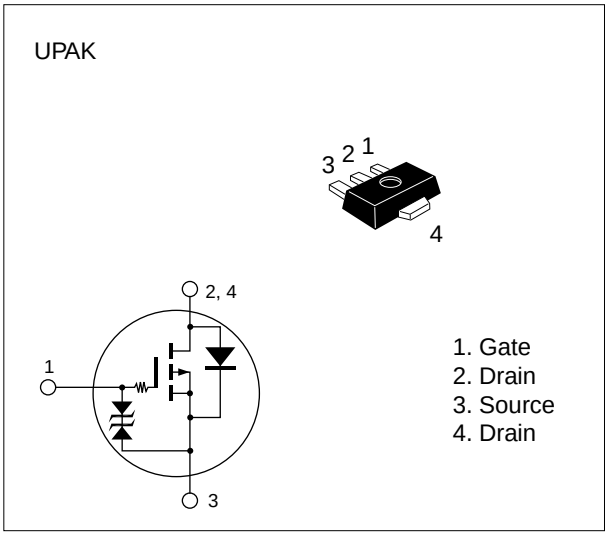


Table 1 Absolute Maximum Ratings (Ta = 25°C)

Item	Symbol	Ratings	Unit
Drain to source voltage	V_{DSS}	–12	V
Gate to source voltage	V_{GSS}	±7	V
Drain current	I_D	±2	A
Drain peak current	$I_{D(pulse)}$*	±4	A
Body–drain diode reverse drain current	I_{DR}	2	A
Channel dissipation	Pch**	1	W
Channel temperature	Tch	150	°C
Storage temperature	Tstg	–55 to +150	°C

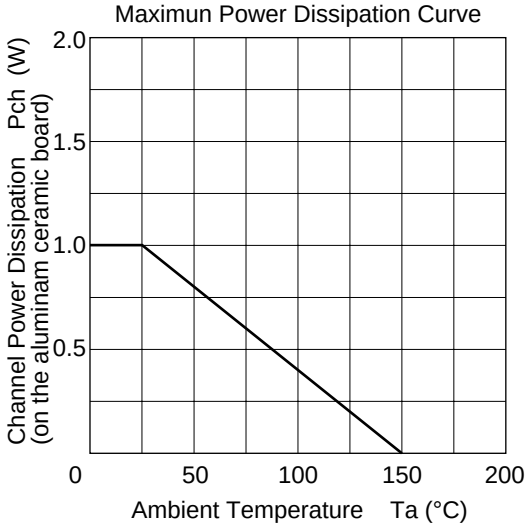
* PW < 100 µs, duty cycle < 10 %
** Value on the alumina ceramic board (12.5 x 20 x 0.7 mm).
*** Marking is "NY".

Table 2 Electrical Characteristics (Ta = 25°C)

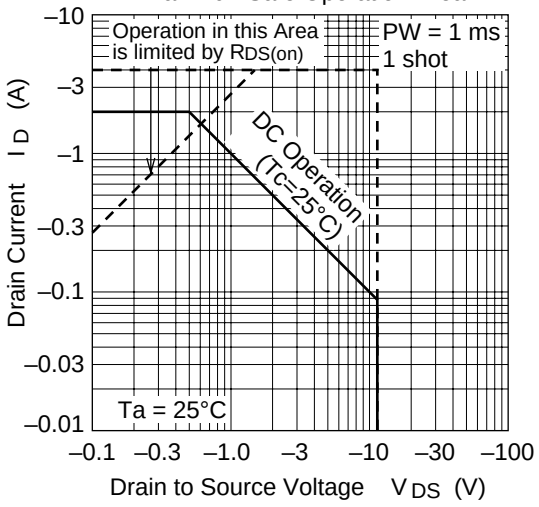
Item	Symbol	Min	Typ	Max	Unit	Test conditions
Drain to source breakdown voltage	$V_{(BR)DSS}$	–12	—	—	V	I_D = –1 mA, V_{GS} = 0
Gate to source breakdown voltage	$V_{(BR)GSS}$	±7	—	—	V	I_G = ±10 µA, V_{DS} = 0
Gate to source cutoff current	I_{GSS}	—	—	±5	µA	V_{GS} = ±6.5 V, V_{DS} = 0
Zero gate voltage drain current	I_{DSS}	—	—	–1	µA	V_{DS} = –8 V, V_{GS} = 0
Gate to source cutoff voltage	$V_{GS(off)}$	–0.4	—	–1.4	V	I_D = –100 µA, V_{DS} = –5 V
Static drain to source on state resistance	$R_{DS(on)1}$	—	0.4	0.7	Ω	I_D = –0.5 A*, V_{GS} = –2.2 V
Static drain to source on state resistance	$R_{DS(on)2}$	—	0.28	0.35	Ω	I_D = –1 A*, V_{GS} = –4 V
Forward transfer admittance	$\|y_{fs}\|$	1.0	2.3	—	S	I_D = –1 A*, V_{DS} = –5 V
Input capcitance	Ciss	—	63	—	pF	V_{DS} = –5 V, V_{GS} = 0, f = 1 MHz
Output capacitance	Coss	—	180	—	pF	
Reverse transfer capacitance	Crss	—	23	—	pF	
Turn–on time	t_{on}	—	500	—	ns	I_D = –0.2 A*, Vin = –4 V, R_L = 51 Ω
Turn–off delay time	t_{off}	—	2860	—	ns	

* Pulse test

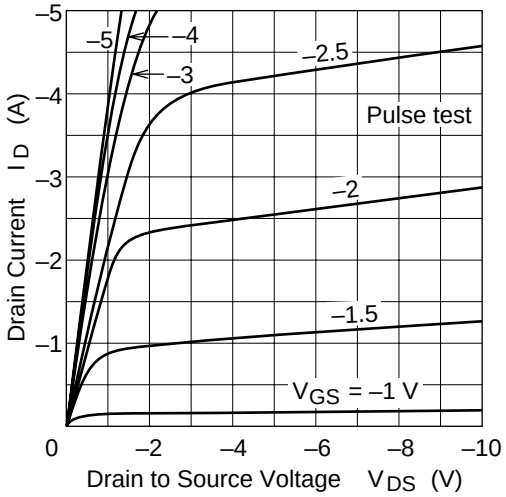
Maximun Power Dissipation Curve



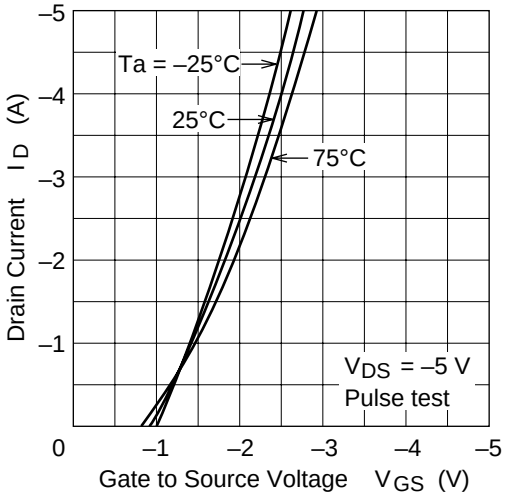
Maximun Safe Operation Area



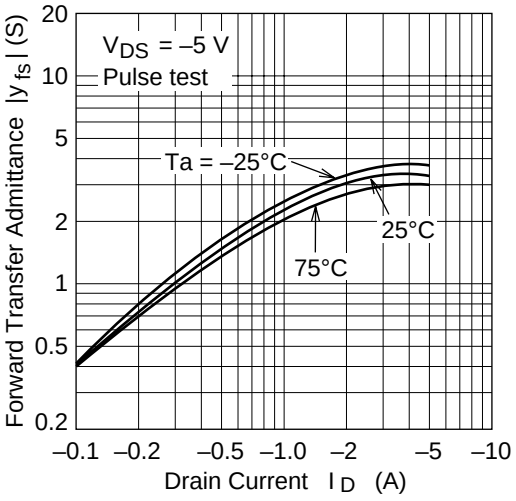
Typical Output Characteristics



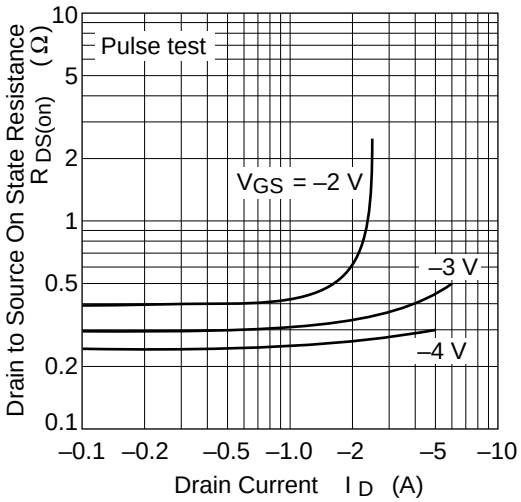
Typical Forward Transfer Characteristics



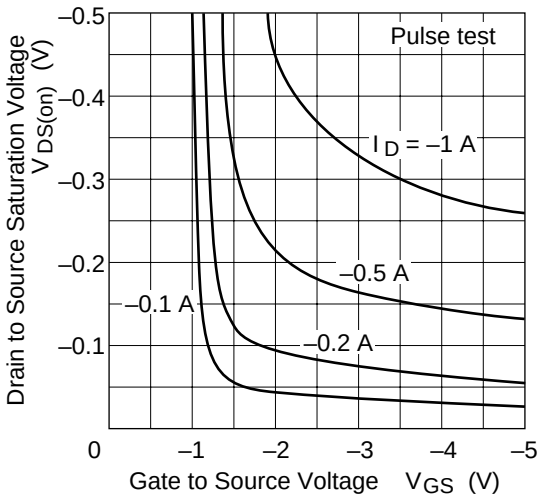
Forward Transfer Admittance vs. Drain Current



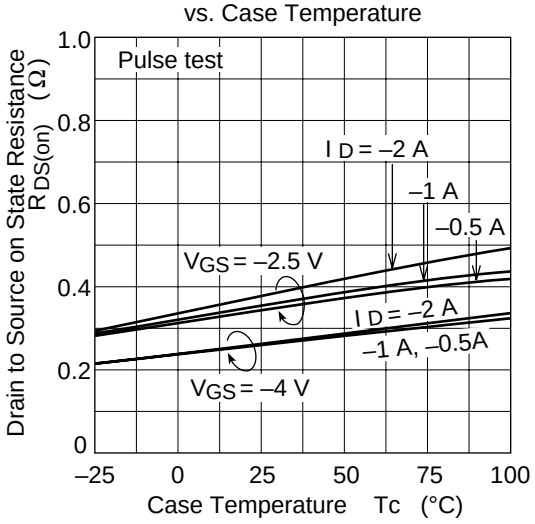
Drain to Source on State Resistance vs. Drain Current



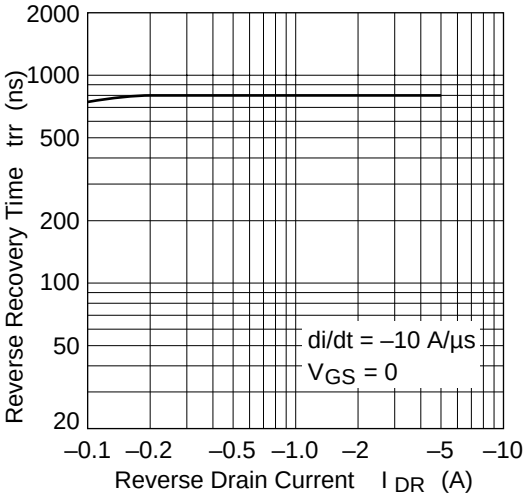
Drain to Source Saturation Voltage vs. Gate to Source Voltage



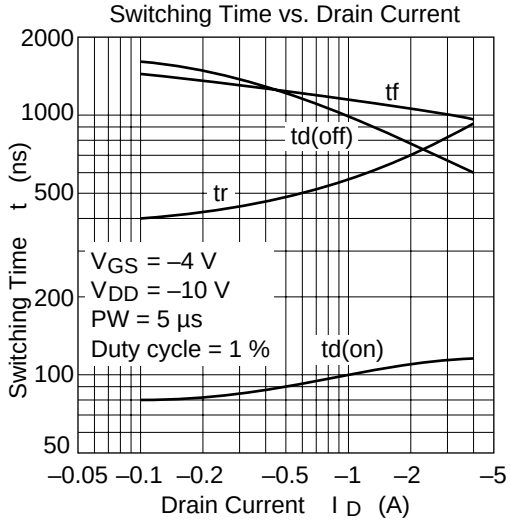
Drain to Source on State Resintance vs. Case Temperature



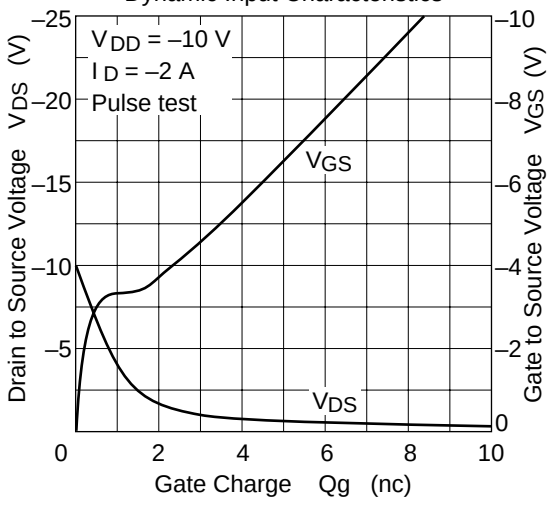
Reverse Recovery Time vs.
Reverse Drain Current



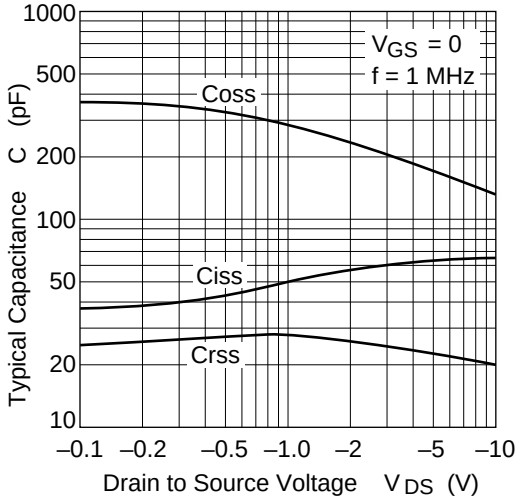
Switching Time vs. Drain Current

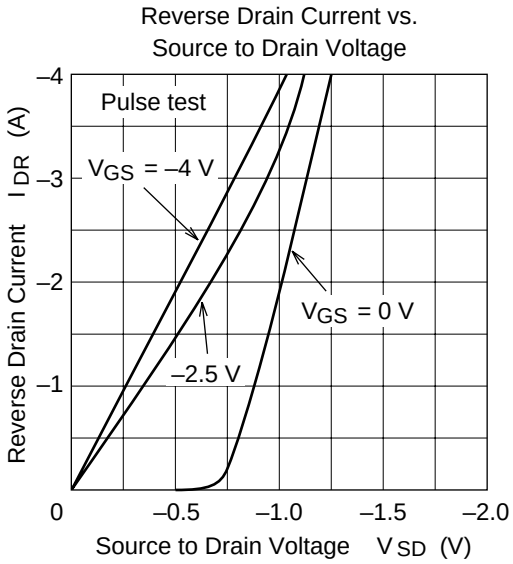


Dynamic Input Characteristics



Typical Capacitance vs.
Drain to Source Voltage




Reverse Drain Current vs.
Source to Drain Voltage
Pulse test
V_{GS} = –4 V
V_{GS} = 0 V
–2.5 V
Reverse Drain Current I_{DR} (A)
–4
–3
–2
–1
0
–0.5
–1.0
–1.5
–2.0
Source to Drain Voltage V_{SD} (V)