2SJ361

Silicon P-Channel MOS FET

Application

High speed power switching

Features

- Low on–resistance
- High speed switching
- Low drive current
- 2.5 V gate drive device can be driven from 3 V source

UPAK

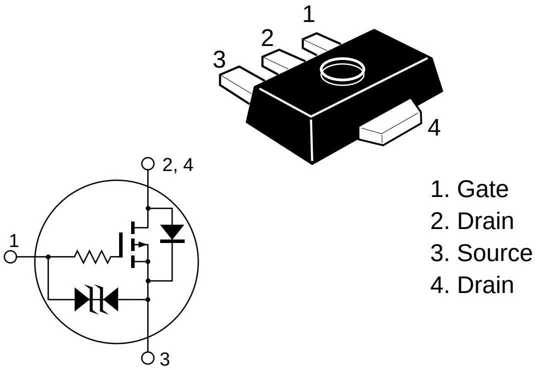


Table 1 Absolute Maximum Ratings (Ta = 25°C)

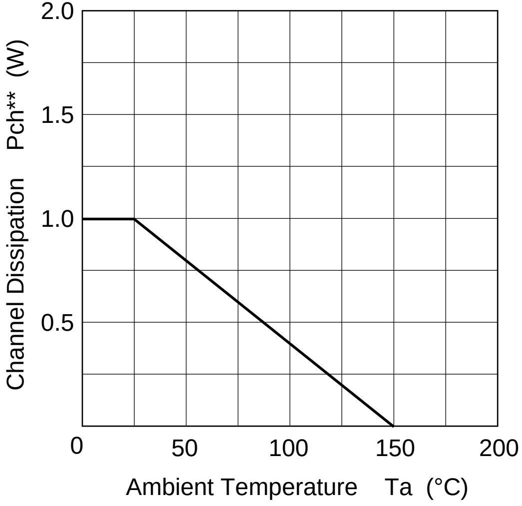
Item	Symbol	Ratings	Unit
Drain to source voltage	V_{DSS}	–20	V
Gate to source voltage	V_{GSS}	±20	V
Drain current	I_D	–2	A
Drain peak current	$I_{D(pulse)}{}^{*}$	–4	A
Body–drain diode reverse drain current	I_{DR}	–2	A
Channel dissipation	Pch**	1	W
Channel temperature	Tch	150	°C
Storage temperature	Tstg	–55 to +150	°C

* PW ≤ 10 µs, duty cycle ≤ 1 %
** Value on the alumina ceramic board (12.5 x 20 x 0.7mm)
*** Marking is “RY”.

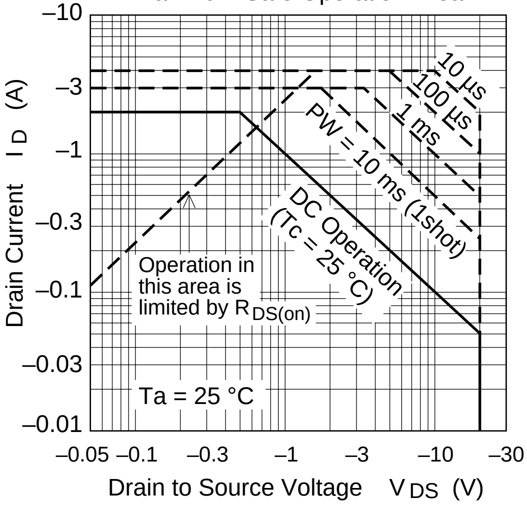
Table 2 Electrical Characteristics (Ta = 25°C)

Item	Symbol	Min	Typ	Max	Unit	Test conditions
Drain to source breakdown voltage	$V_{(BR)DSS}$	–20	—	—	V	I_D = –10 mA, V_{GS} = 0
Gate to source breakdown voltage	$V_{(BR)GSS}$	±20	—	—	V	I_G = ±100 µA, V_{DS} = 0
Gate to source leak current	I_{GSS}	—	—	±10	µA	V_{GS} = ±16 V, V_{DS} = 0
Zero gate voltage drain current	I_{DSS}	—	—	–10	µA	V_{DS} = –16 V, V_{GS} = 0
Gate to source cutoff voltage	$V_{GS(off)}$	–0.5	—	–1.5	V	I_D = –1 mA, V_{DS} = –10 V
Static drain to source on state resistance	$R_{DS(on)}$	—	0.28	0.4	Ω	I_D = –1 A V_{GS} = –10 V
		—	0.85	1.5	Ω	I_D = –0.4 A V_{GS} = –2.5 V
Forward transfer admittance	$\lvert y_{fs} \rvert$	0.15	0.3	—	S	I_D = –10 A V_{DS} = –10 V
Input capacitance	Ciss	—	3.2	—	pF	V_{DS} = –10 V V_{GS} = 0 f = 1 MHz
Output capacitance	Coss	—	130	—	pF	
Reverse transfer capacitance	Crss	—	0.6	—	pF	
Turn–on delay time	$t_{d(on)}$	—	350	—	ns	I_D = –1 A V_{GS} = –10 V R_L = 10 Ω
Rise time	t_r	—	1650	—	ns	
Turn–off delay time	$t_{d(off)}$	—	7280	—	ns	
Fall time	t_f	—	6950	—	ns	
Body–drain diode forward voltage	V_{DF}	—	–1.0	—	V	I_F = –2 A, V_{GS} = 0
Body–drain diode reverse recovery time	t_{rr}	—	530	—	µs	I_F = –2 A, V_{GS} = 0, diF / dt = 20 A / µs

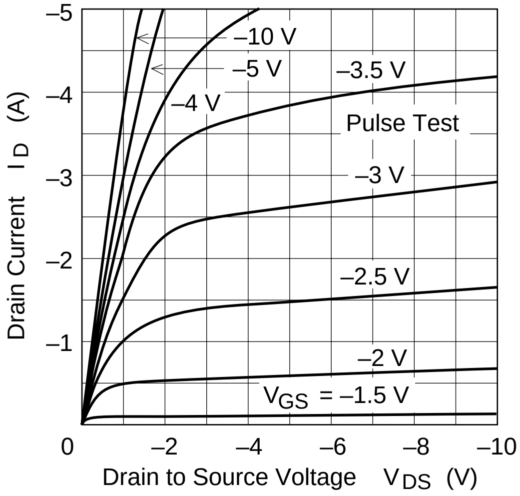
* Pulse Test



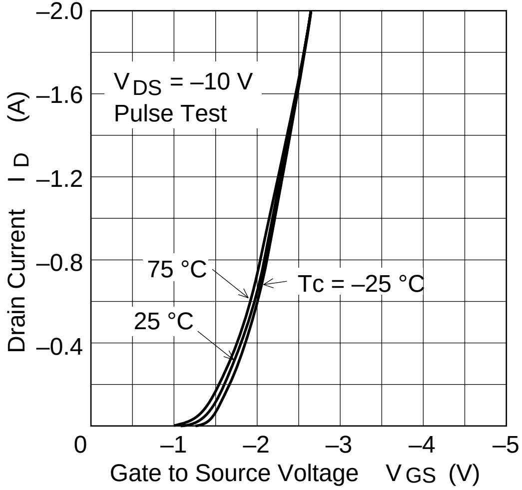
Power vs. Temperature Derating



Maximum Safe Operation Area

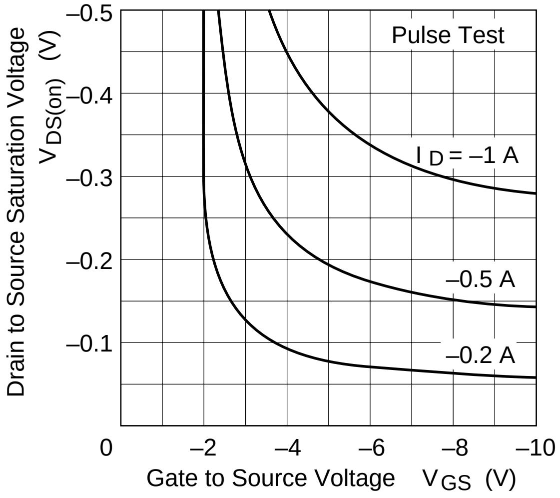


Typical Output Characteristics

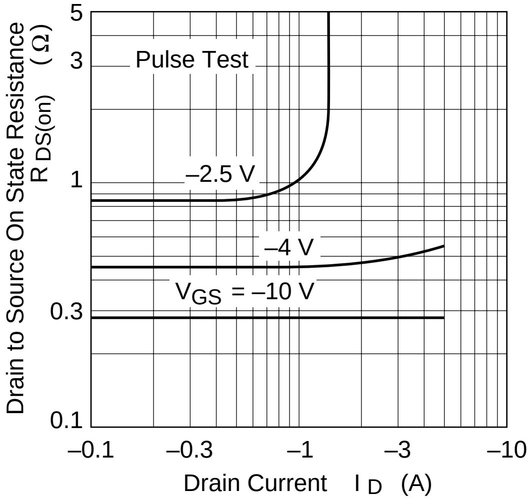


Typical Transfer Characteristics

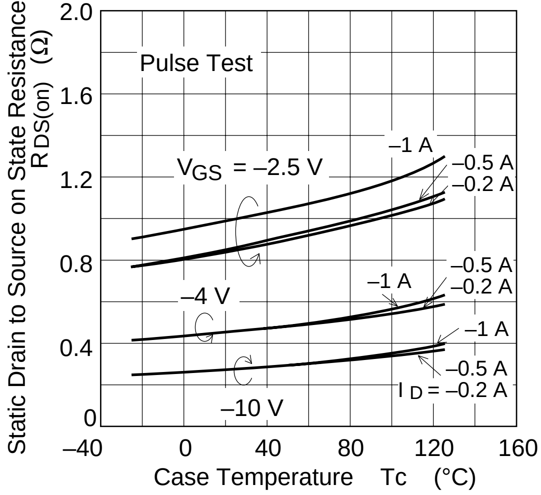
Drain to Source Saturation Voltage vs. Gate to Source Voltage



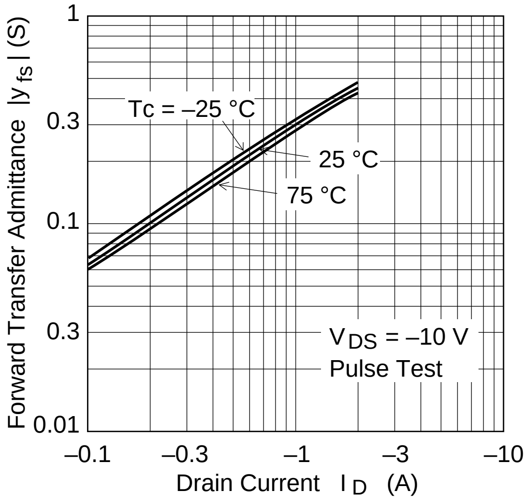
Static Drain to Source on State Resistance vs. Drain Current



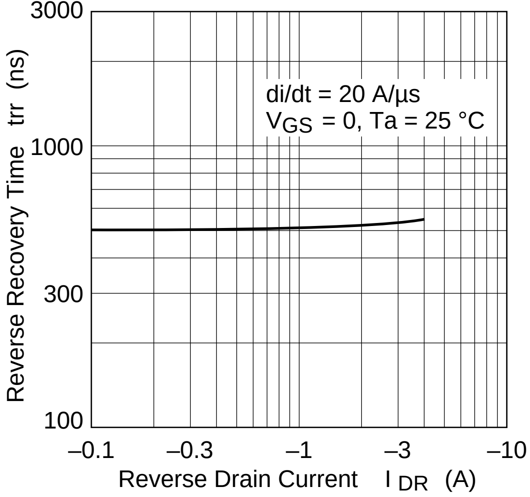
Static Drain to Source on State Resistance vs. Temperature



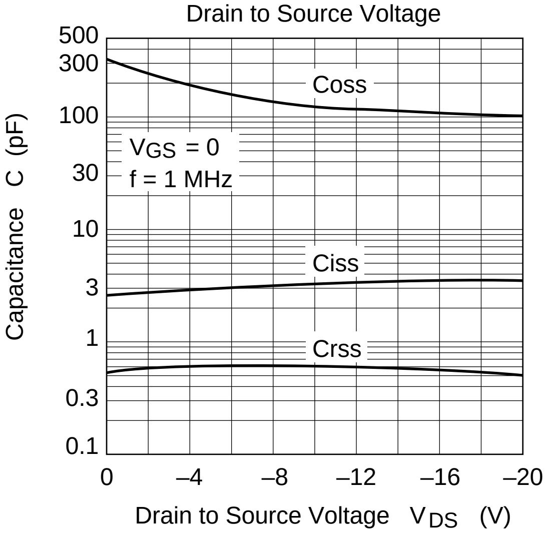
Forward Transfer Admittance vs. Drain Current



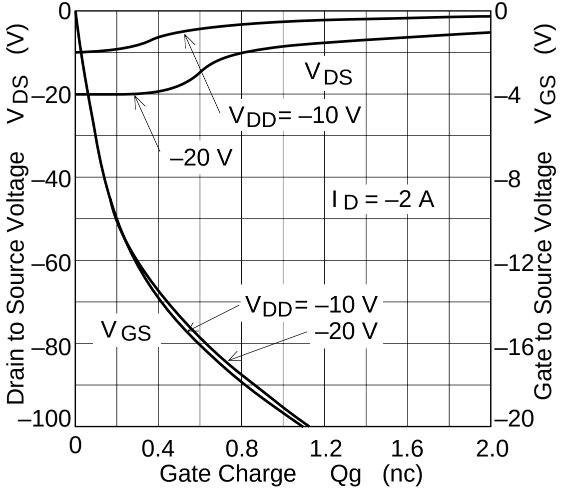
Body–Drain Diode Reverse Recovery Time



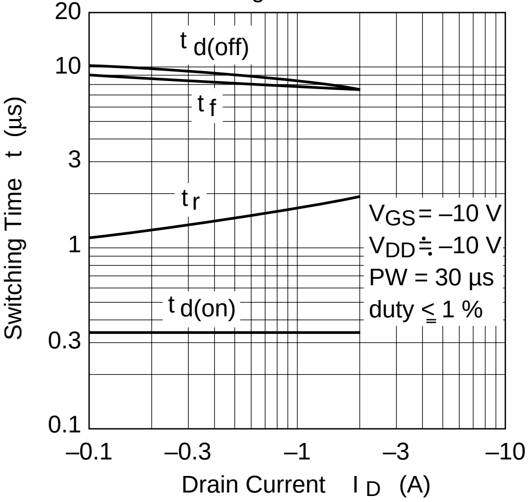
Typical Capacitance vs. Drain to Source Voltage

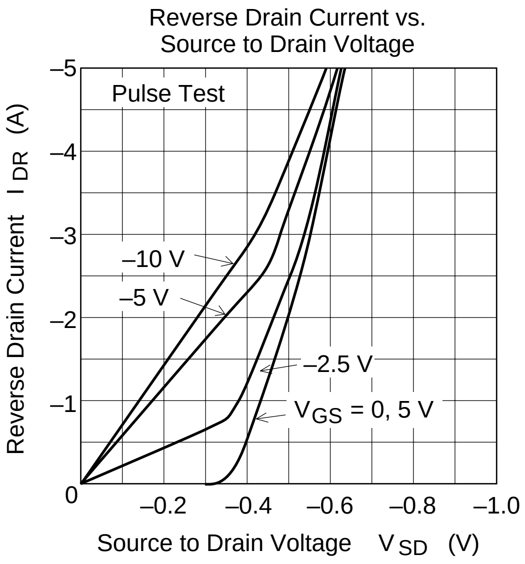


Dynamic Input Characteristics

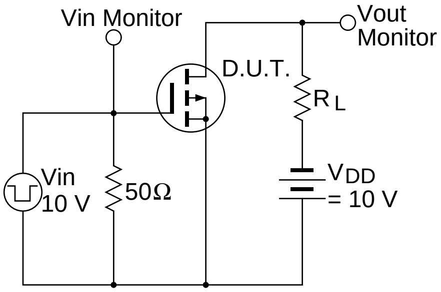


Switching Characteristics





Switching Time Test Circuit



Waveforms