

2SJ387 L, 2SJ387 S

Silicon P Channel MOS FET

Application

High speed power switching

Features

- Low on-resistance
- Low drive current
- 2.5 V Gate drive device can be driven from 3 V Source
- Suitable for Switching regulator, DC – DC converter

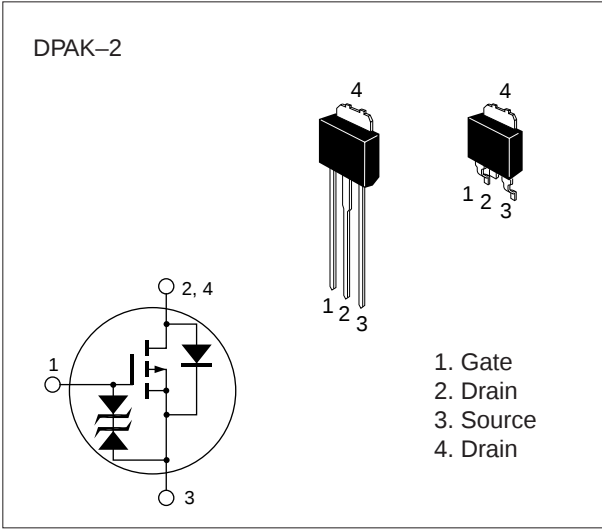


Table 1 Absolute Maximum Ratings (Ta = 25°C)

Item	Symbol	Ratings	Unit
Drain to source voltage	V_{DSS}	-20	V
Gate to source voltage	V_{GSS}	±10	V
Drain current	I_D	-10	A
Drain peak current	$I_{D(pulse)}^*$	-40	A
Body-drain diode reverse drain current	I_{DR}	-10	A
Channel dissipation	P_{ch}^{**}	20	W
Channel temperature	T_{ch}	150	°C
Storage temperature	T_{stg}	-55 to +150	°C

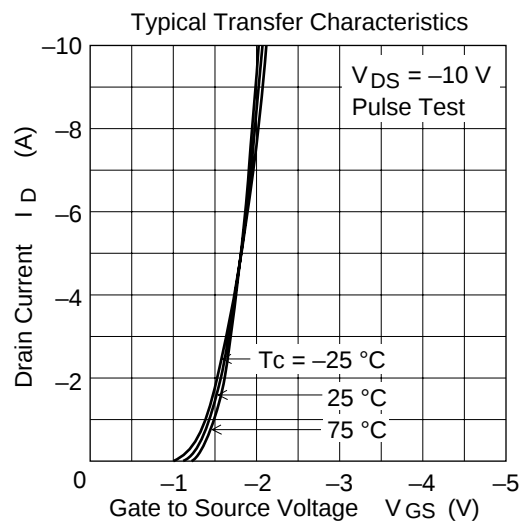
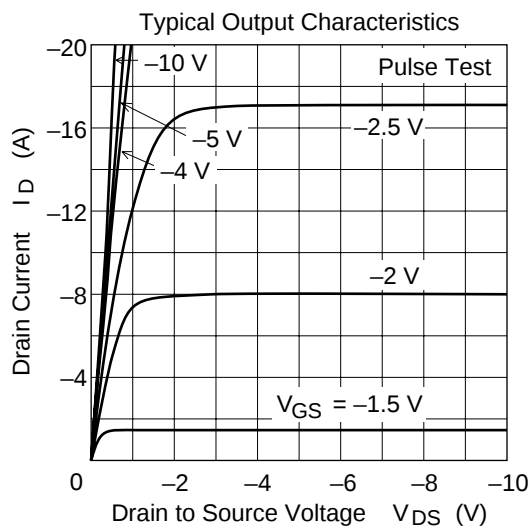
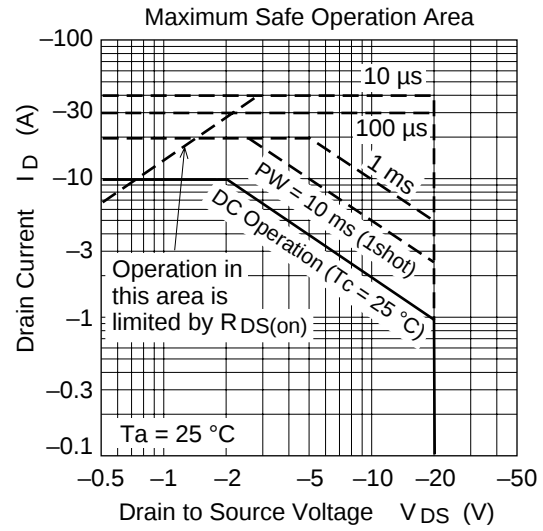
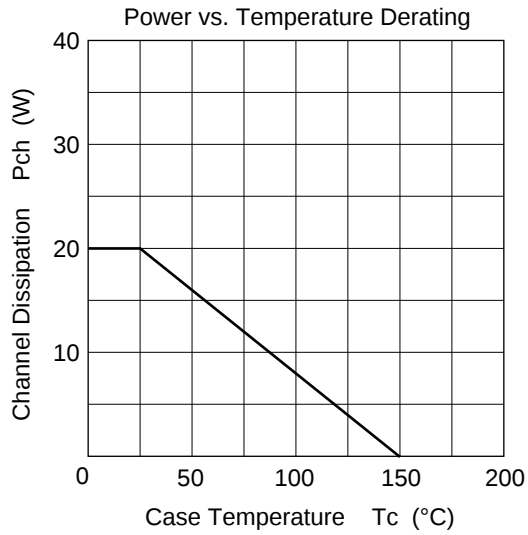
* $PW \leq 10 \mu s$, duty cycle $\leq 1 \%$

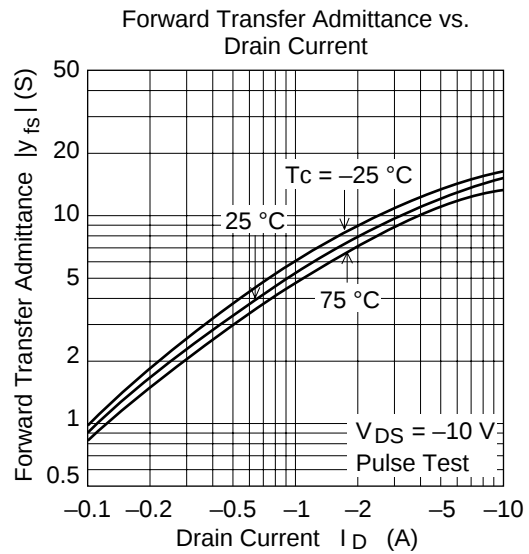
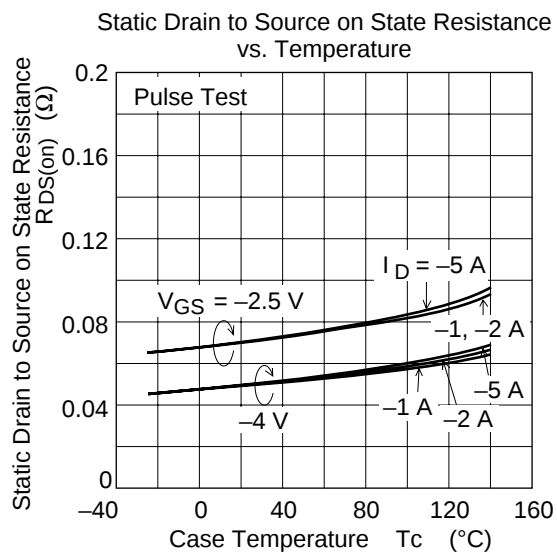
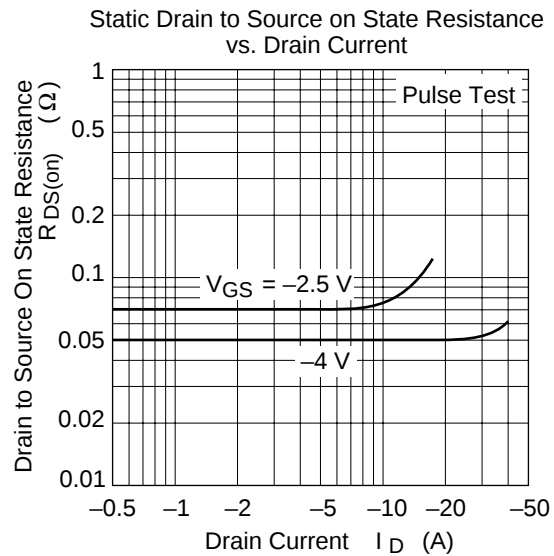
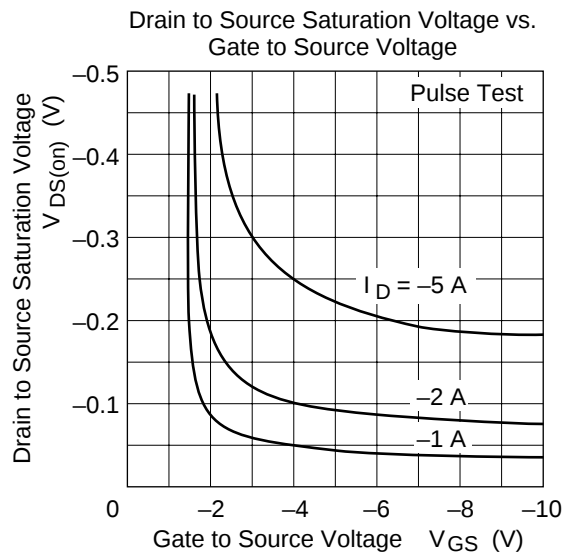
** Value at $T_c = 25^\circ C$

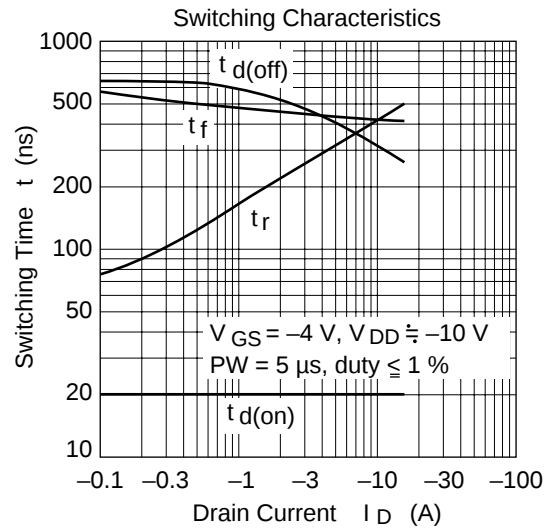
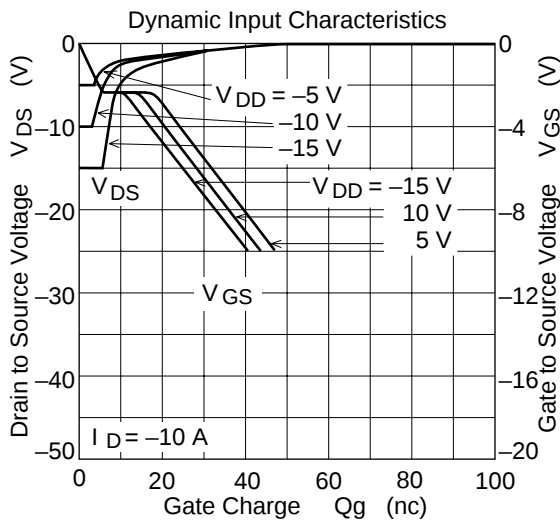
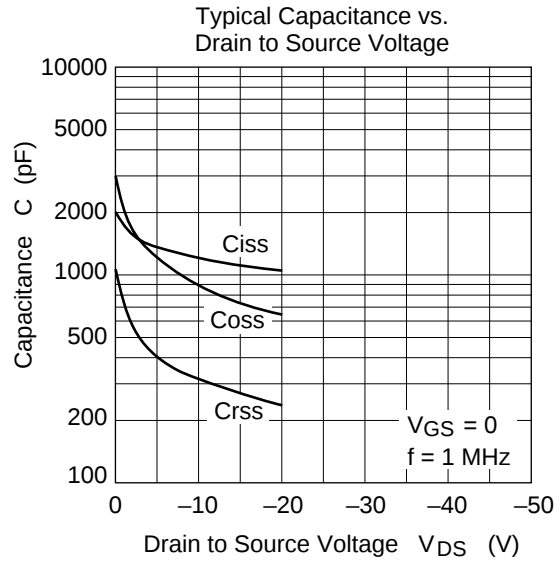
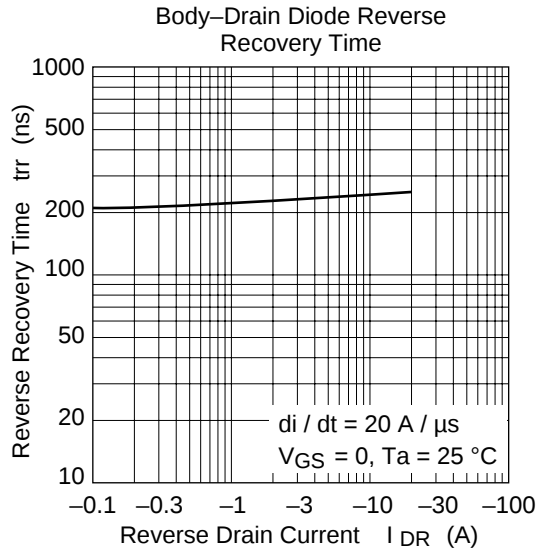
Table 2 Electrical Characteristics ($T_a = 25^\circ\text{C}$)

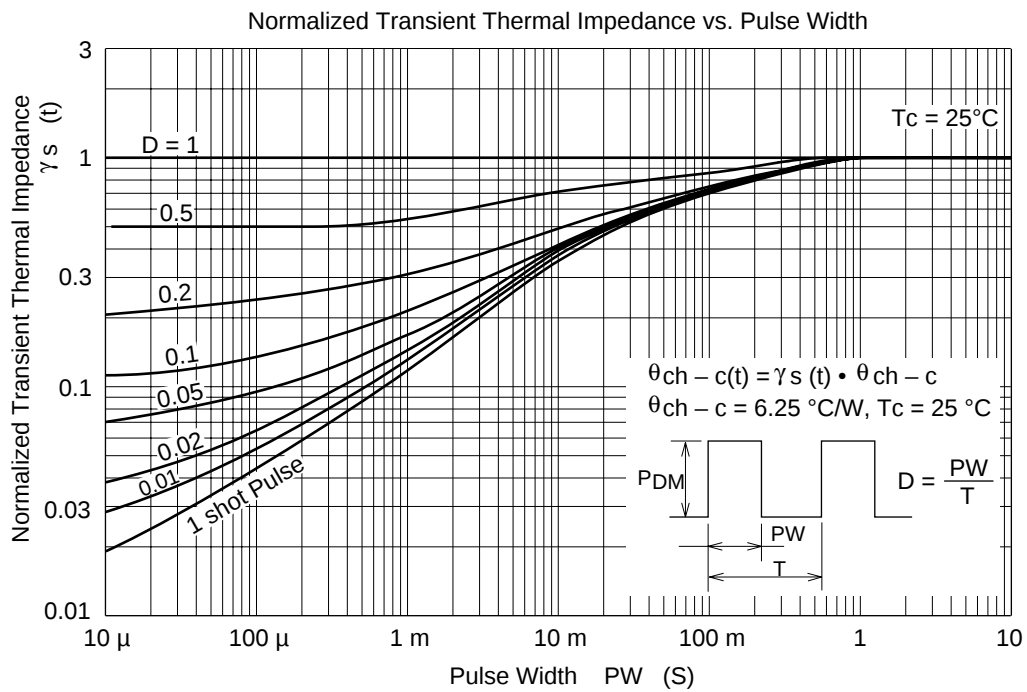
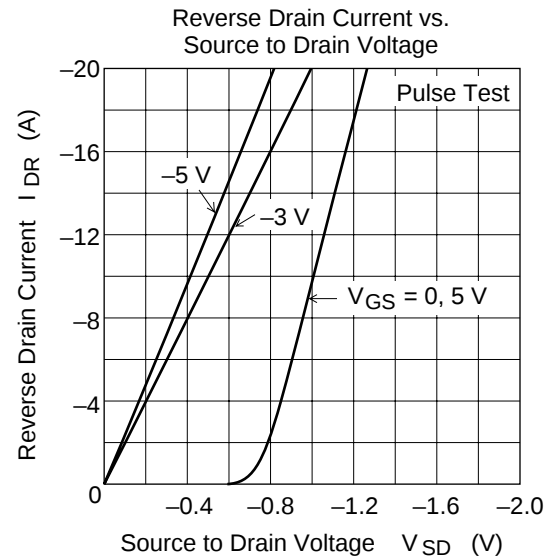
Item	Symbol	Min	Typ	Max	Unit	Test conditions
Drain to source breakdown voltage	$V_{(BR)DSS}$	-20	—	—	V	$I_D = -10\text{ mA}$, $V_{GS} = 0$
Gate to source breakdown voltage	$V_{(BR)GSS}$	± 10	—	—	V	$I_G = \pm 200\text{ }\mu\text{A}$, $V_{DS} = 0$
Gate to source leak current	I_{GSS}	—	—	± 10	μA	$V_{GS} = \pm 6.5\text{ V}$, $V_{DS} = 0$
Zero gate voltage drain current	I_{DSS}	—	—	-100	μA	$V_{DS} = -16\text{ V}$, $V_{GS} = 0$
Gate to source cutoff voltage	$V_{GS(off)}$	-0.5	—	-1.5	V	$I_D = -1\text{ mA}$, $V_{DS} = -10\text{ V}$
Static drain to source on state resistance	$R_{DS(on)}$	—	0.05	0.07	Ω	$I_D = -5\text{ A}$ $V_{GS} = -4\text{ V}^*$
		—	0.07	0.1	Ω	$I_D = -5\text{ A}$ $V_{GS} = -2.5\text{ V}^*$
Forward transfer admittance	$ y_{fs} $	7	12	—	S	$I_D = -5\text{ A}$ $V_{DS} = -10\text{ V}^*$
Input capacitance	C_{iss}	—	1170	—	pF	$V_{DS} = -10\text{ V}$
Output capacitance	C_{oss}	—	860	—	pF	$V_{GS} = 0$
Reverse transfer capacitance	C_{rss}	—	310	—	pF	$f = 1\text{ MHz}$
Turn-on delay time	$t_{d(on)}$	—	20	—	ns	$I_D = -5\text{ A}$
Rise time	t_r	—	325	—	ns	$V_{GS} = -4\text{ V}$
Turn-off delay time	$t_{d(off)}$	—	350	—	ns	$R_L = 2\text{ }\Omega$
Fall time	t_f	—	425	—	ns	
Body-drain diode forward voltage	V_{DF}	—	-1.0	—	V	$I_F = -10\text{ A}$, $V_{GS} = 0$
Body-drain diode reverse recovery time	t_{rr}	—	240	—	μs	$I_F = -10\text{ A}$, $V_{GS} = 0$, $diF / dt = 20\text{ A} / \mu\text{s}$

* Pulse Test

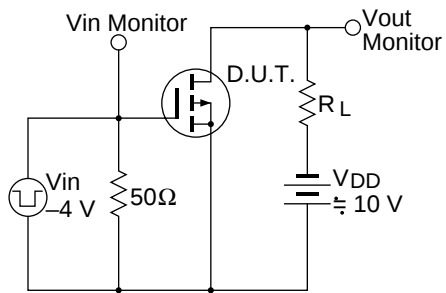








Switching Time Test Circuit



Waveforms

