
2SK1401, 2SK1401A

Silicon N-Channel MOS FET

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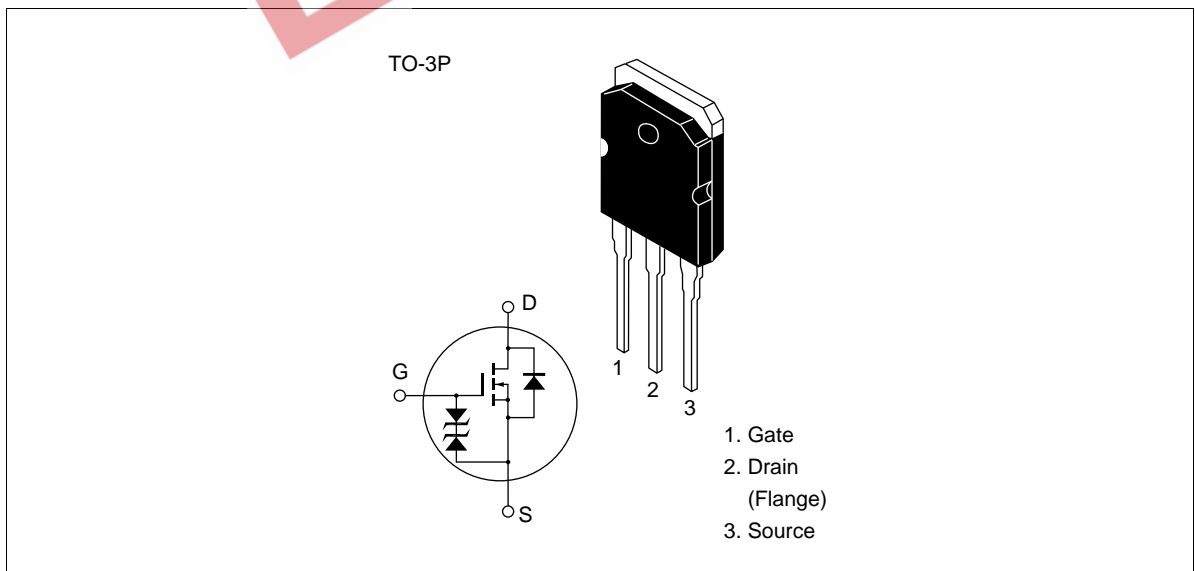
Application

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

Outline



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Absolute Maximum Ratings (Ta = 25°C)

Item		Symbol	Ratings	Unit
Drain to source voltage	2SK1401	V_{DSS}	300	V
	2SK1401A		350	
Gate to source voltage		V_{GSS}	±30	V
Drain current		I_D	15	A
Drain peak current		$I_{D(pulse)}^{*1}$	60	A
Body to drain diode reverse drain current		I_{DR}	15	A
Channel dissipation		Pch^{*2}	100	W
Channel temperature		Tch	150	°C
Storage temperature		Tstg	-55 to +150	°C

Notes: 1. $PW \leq 10 \mu s$, duty cycle $\leq 1\%$

2. Value at $T_c = 25^\circ C$

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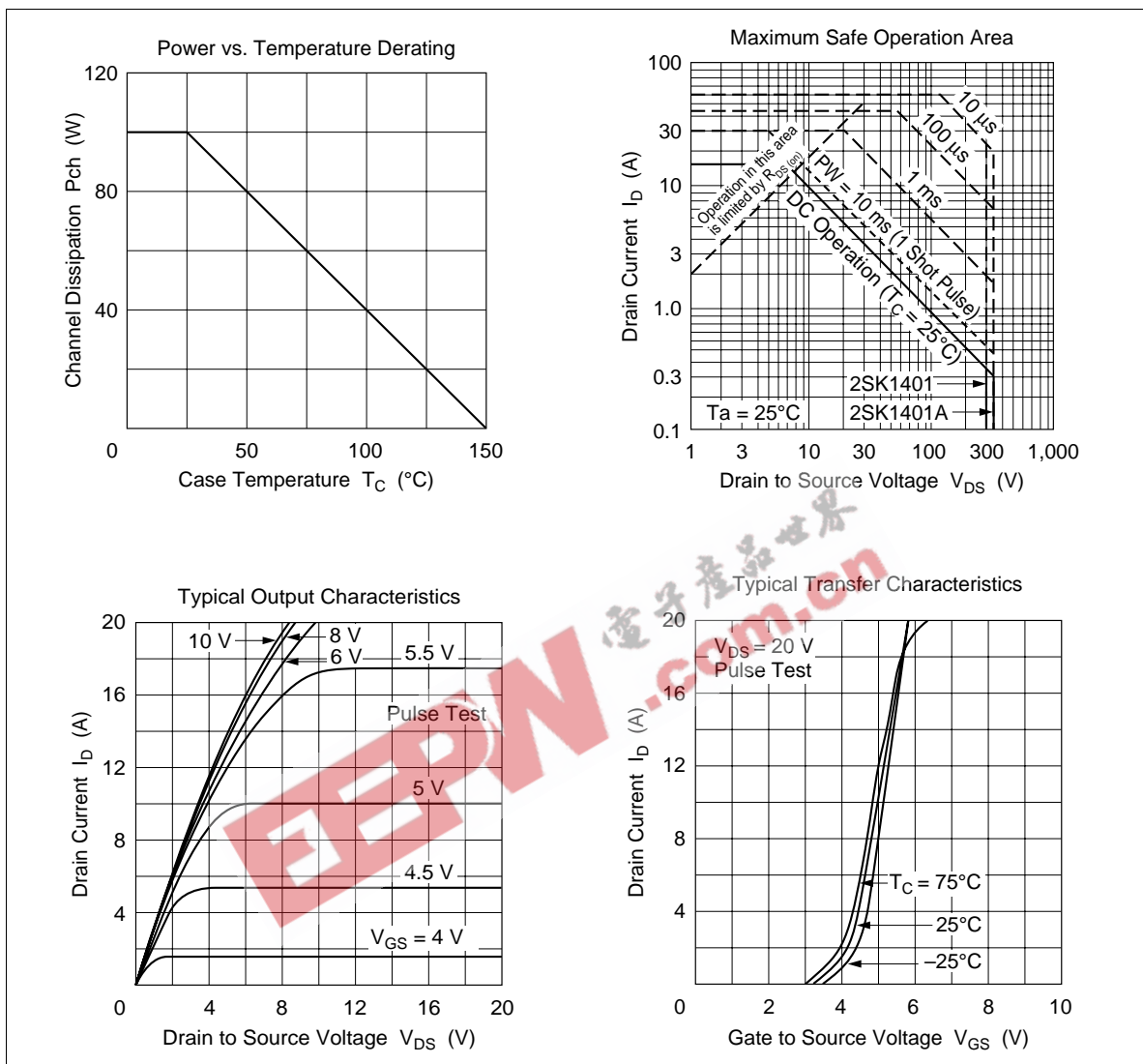
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Electrical Characteristics (T_a = 25°C)

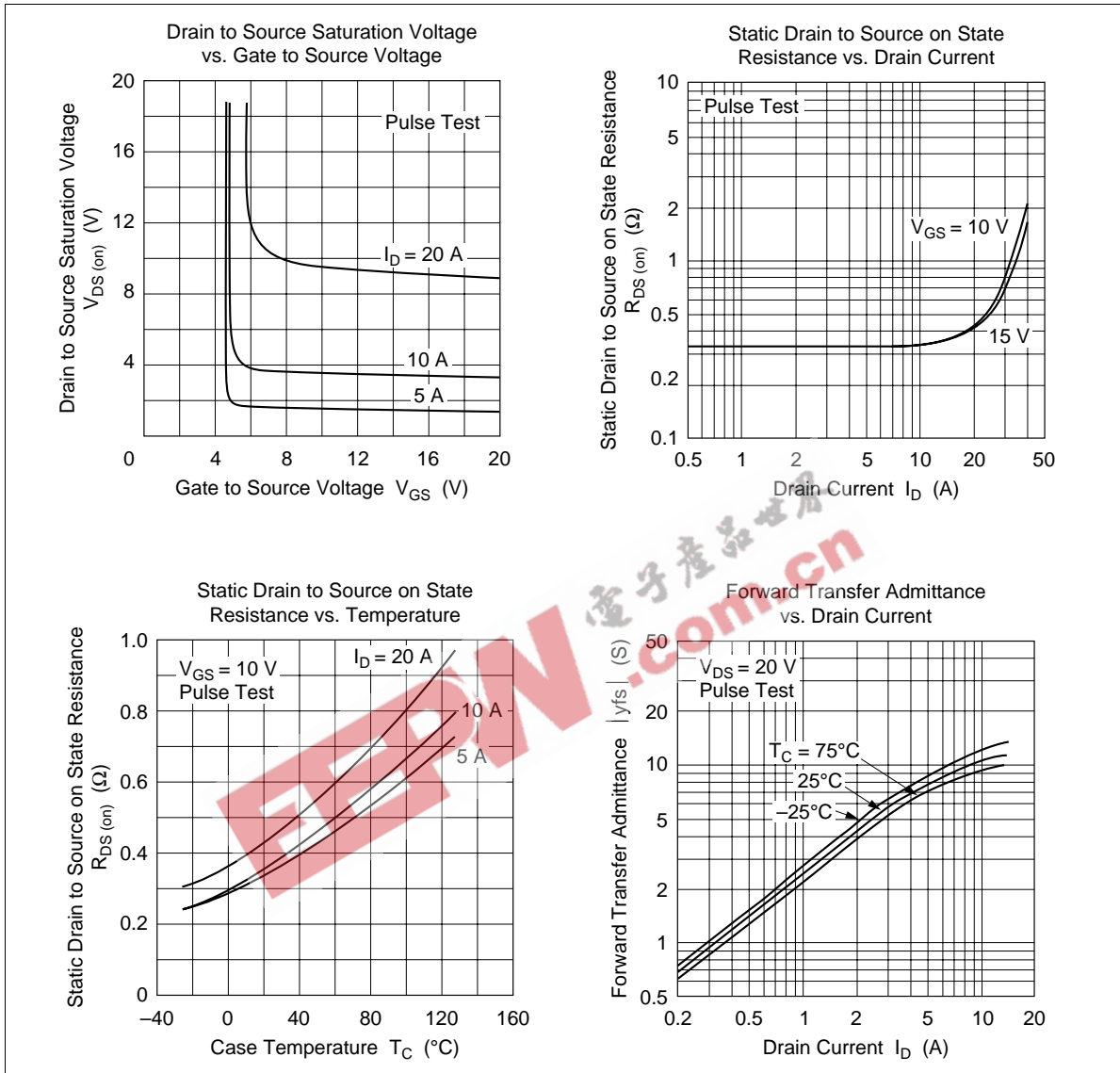
Item		Symbol	Min	Typ	Max	Unit	Test conditions
Drain to source breakdown voltage	K1401	$V_{(BR)DSS}$	300	—	—	V	$I_D = 10 \text{ mA}, V_{GS} = 0$
	K1401A		350	—	—		
Gate to source breakdown voltage		$V_{(BR)GSS}$	±30	—	—	V	$I_G = \pm 100 \mu\text{A}, V_{DS} = 0$
Gate to source leak current		I_{GSS}	—	—	±10	μA	$V_{GS} = \pm 25 \text{ V}, V_{DS} = 0$
Zero gate voltage drain current	K1401	I_{DSS}	—	—	250	μA	$V_{DS} = 240 \text{ V}, V_{GS} = 0$
	K1401A						$V_{DS} = 280 \text{ V}, V_{GS} = 0$
Gate to source cutoff voltage		$V_{GS(off)}$	2.0	—	3.0	V	$I_D = 1 \text{ mA}, V_{DS} = 10 \text{ V}$
Static drain to source on state resistance	K1401	$R_{DS(on)}$	—	0.25	0.35	Ω	$I_D = 8 \text{ A}, V_{GS} = 10 \text{ V}^{*1}$
	K1401A			—	0.30		
Forward transfer admittance		y _{fs}	6	9.5	—	S	$I_D = 8 \text{ A}, V_{DS} = 10 \text{ V}^{*1}$
Input capacitance		C _{iss}	—	1250	—	pF	$V_{DS} = 10 \text{ V}, V_{GS} = 0,$
Output capacitance		C _{oss}	—	420	—	pF	f = 1 MHz
Reverse transfer capacitance		C _{rss}	—	70	—	pF	
Turn-on delay time		$t_{d(on)}$	—	15	—	ns	$I_D = 8 \text{ A}, V_{GS} = 10 \text{ V},$
Rise time		t_r	—	80	—	ns	$R_L = 3.75 \Omega$
Turn-off delay time		$t_{d(off)}$	—	100	—	ns	
Fall time		t_f	—	55	—	ns	
Body to drain diode forward voltage		V_{DF}	—	1.05	—	V	$I_F = 15 \text{ A}, V_{GS} = 0$
Body to drain diode reverse recovery time		t_{rr}	—	370	—	ns	$I_F = 15 \text{ A}, V_{GS} = 0,$ $di_F/dt = 100 \text{ A}/\mu\text{s}$

Note: 1. Pulse test

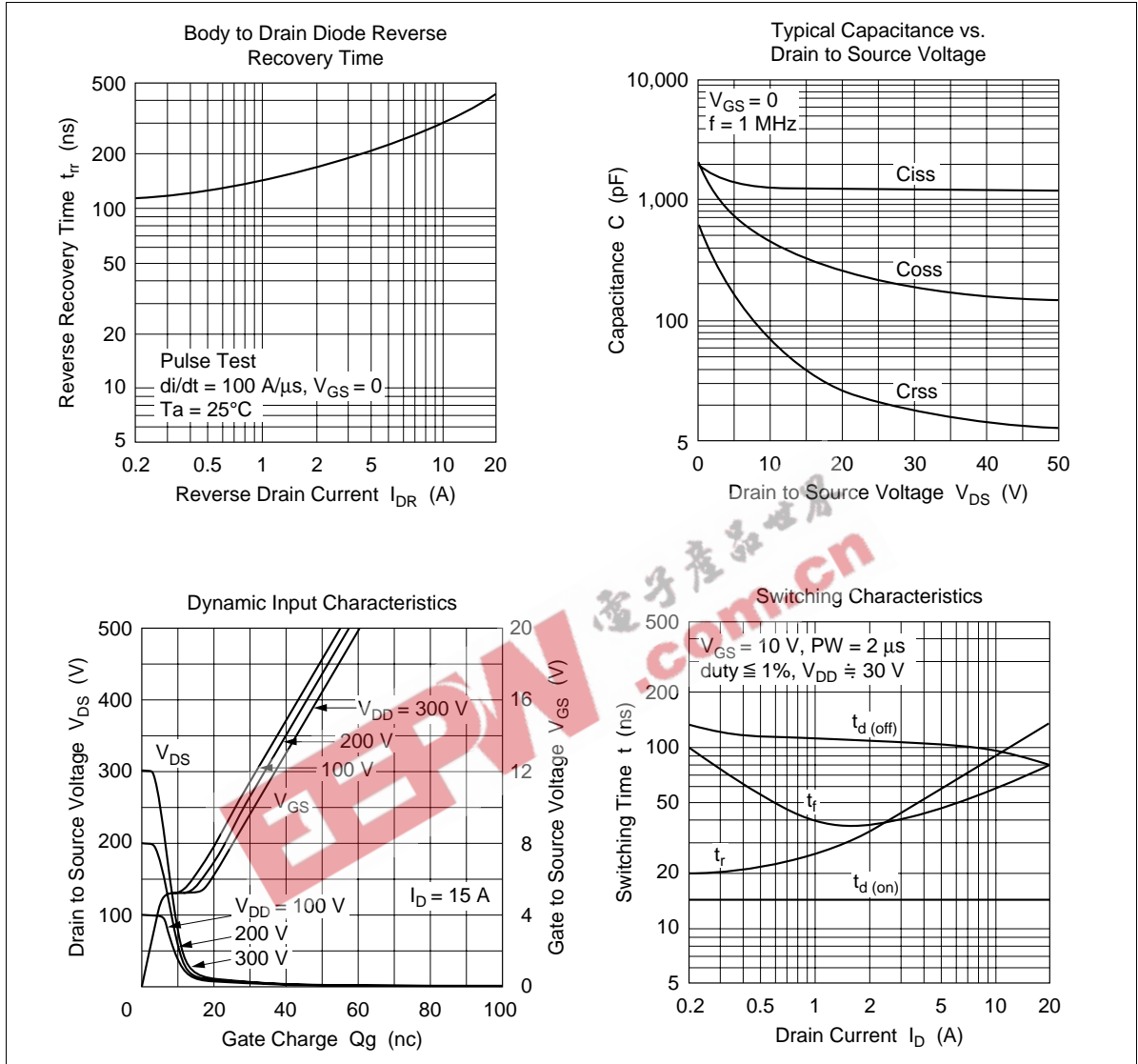
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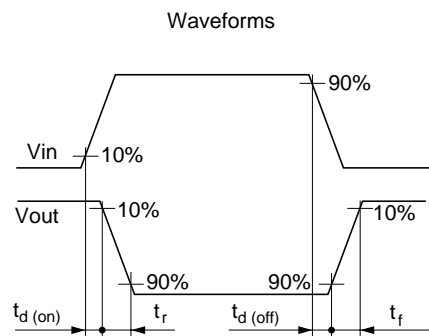
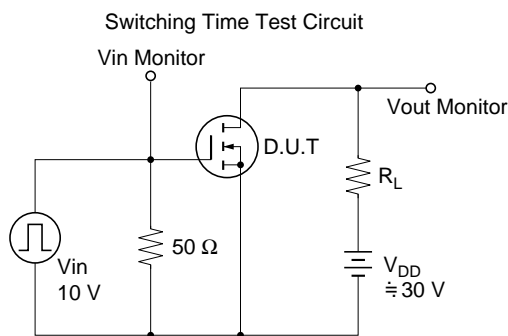
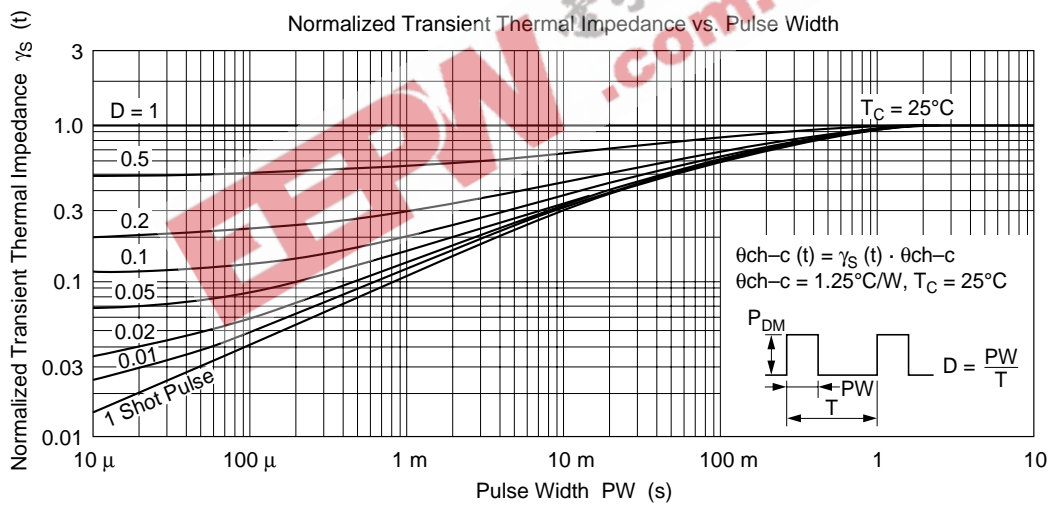
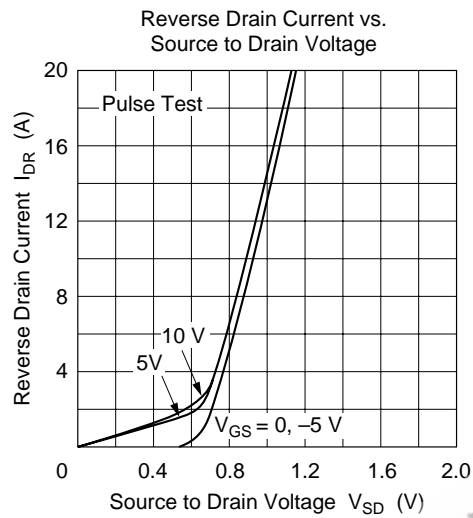
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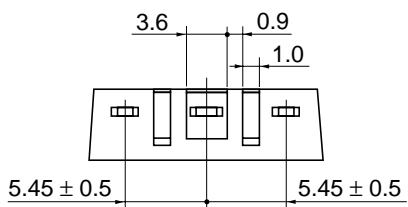
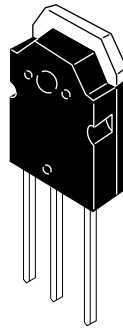
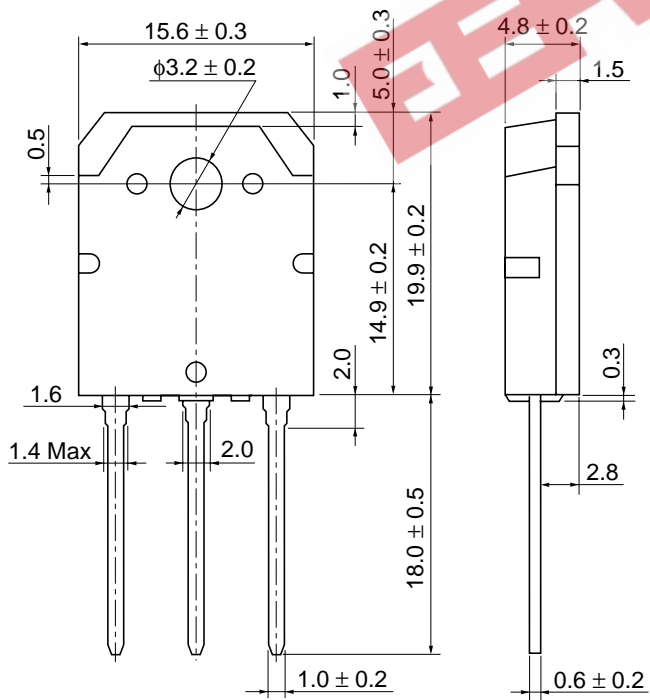
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Unit: mm



Hitachi Code	TO-3P
JEDEC	—
EIAJ	Conforms
Weight (reference value)	5.0 g

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