

2SK741

Silicon N-Channel MOS FET

Application

High speed power switching

Features

- Low on-resistance
- High speed switching
- Low drive current
- No secondary breakdown
- Suitable for switching regulator, DC-DC converter and motor driver

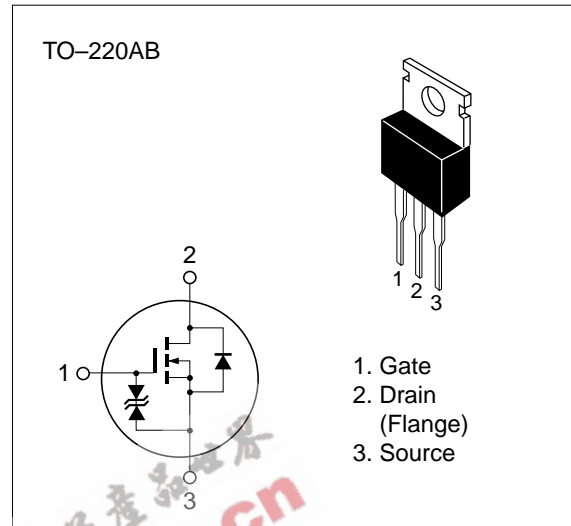


Table 1 Absolute Maximum Ratings ($T_a = 25^\circ\text{C}$)

Item	Symbol	Ratings	Unit
Drain to source voltage	V_{DSS}	250	V
Gate to source voltage	V_{GSS}	± 20	V
Drain current	I_D	7	A
Drain peak current	$I_{D(\text{pulse})}^*$	28	A
Body to drain diode reverse drain current	I_{DR}	7	A
Channel dissipation	P_{ch}^{**}	50	W
Channel temperature	T_{ch}	150	$^\circ\text{C}$
Storage temperature	T_{stg}	-55 to +150	$^\circ\text{C}$

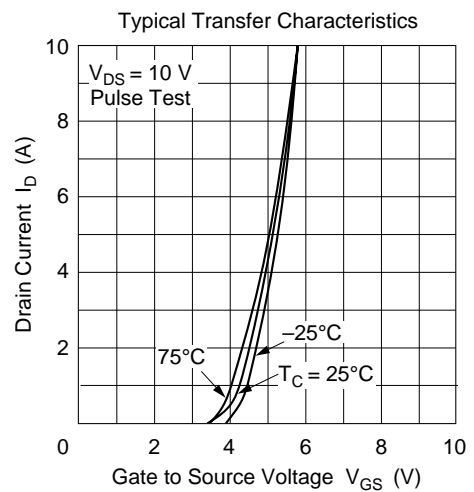
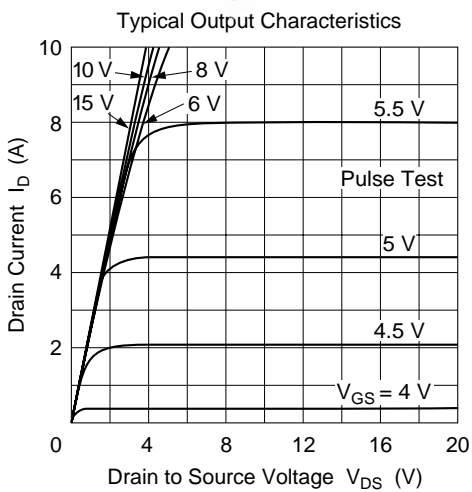
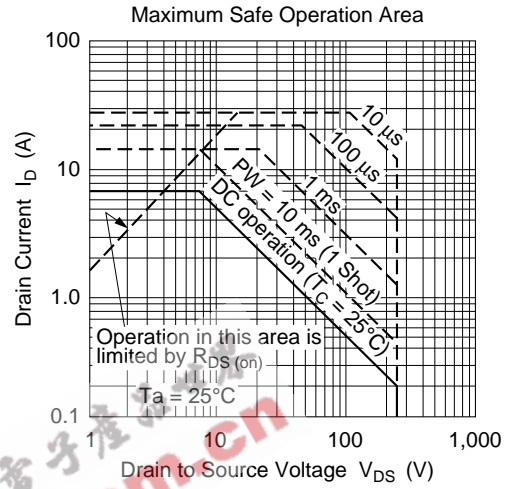
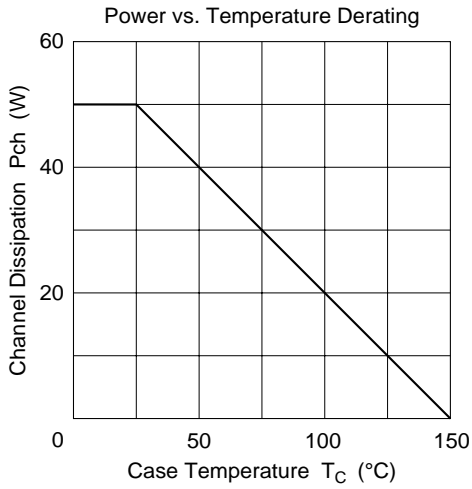
* $PW \leq 10 \mu\text{s}$, duty cycle $\leq 1\%$

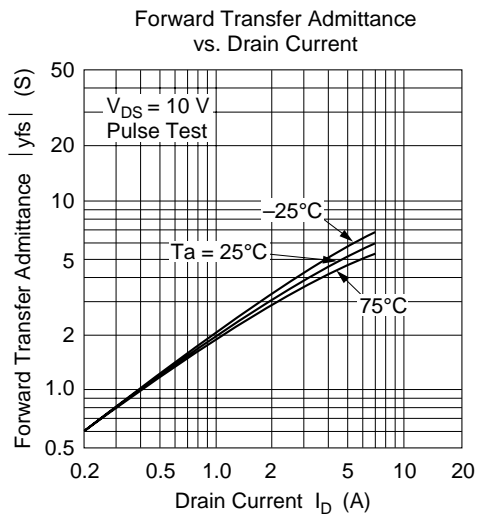
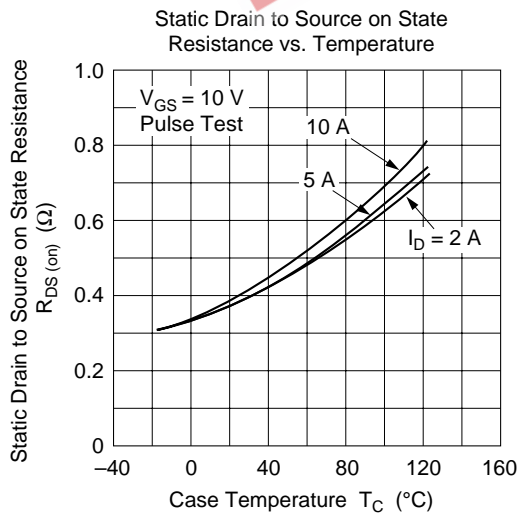
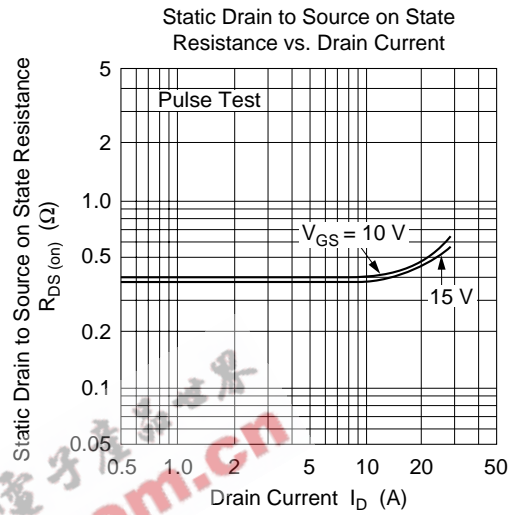
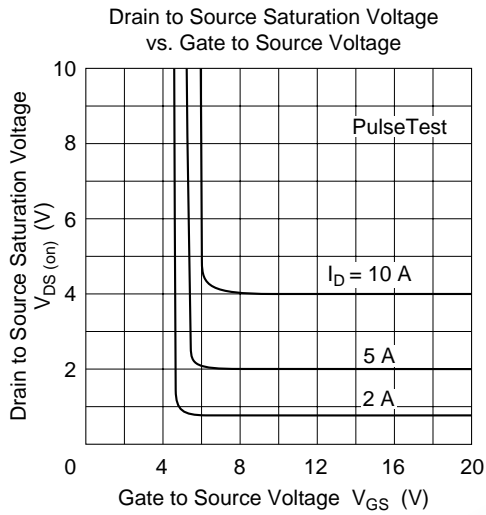
** Value at $T_C = 25^\circ\text{C}$

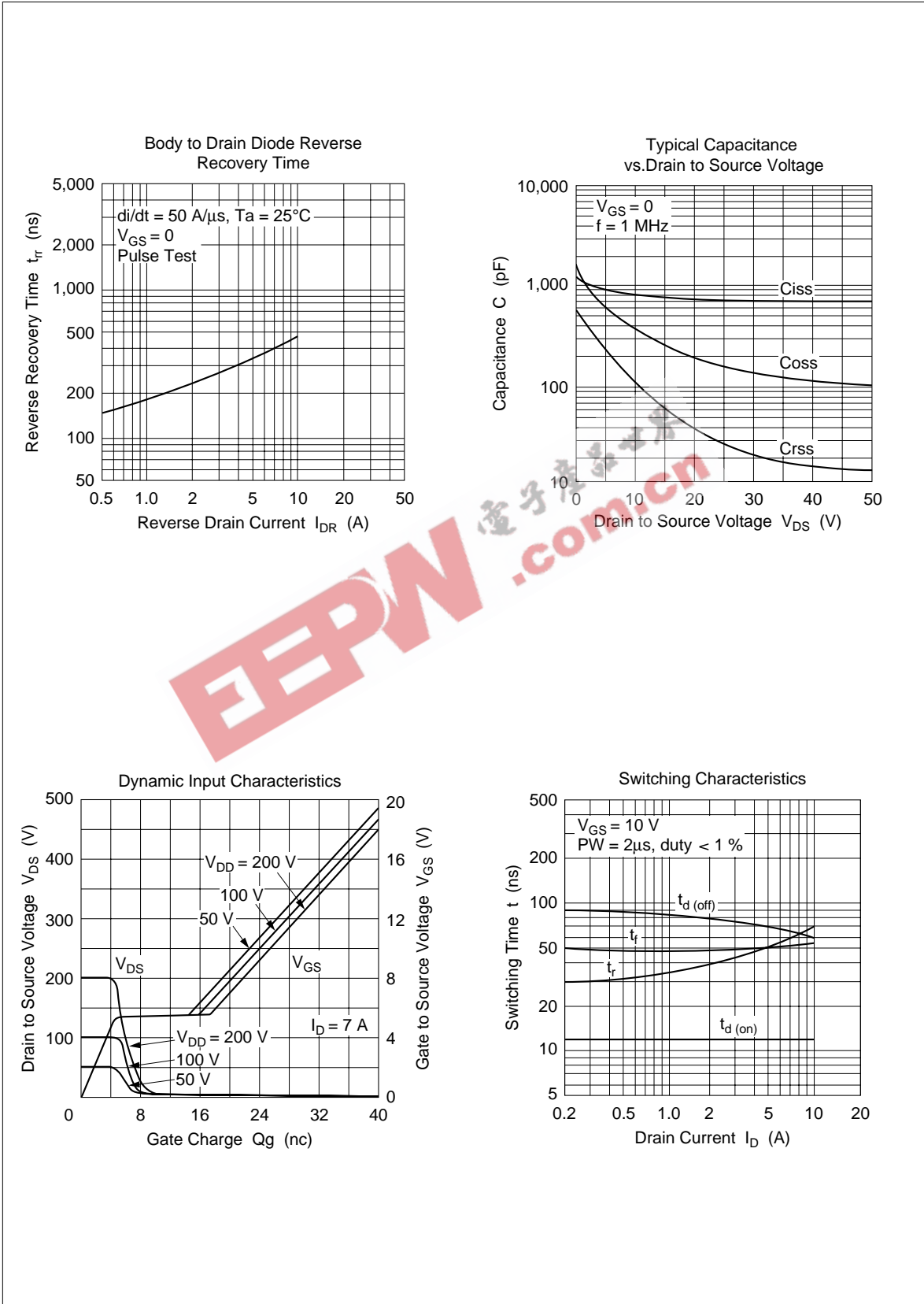
Table 2 Electrical Characteristics (Ta = 25°C)

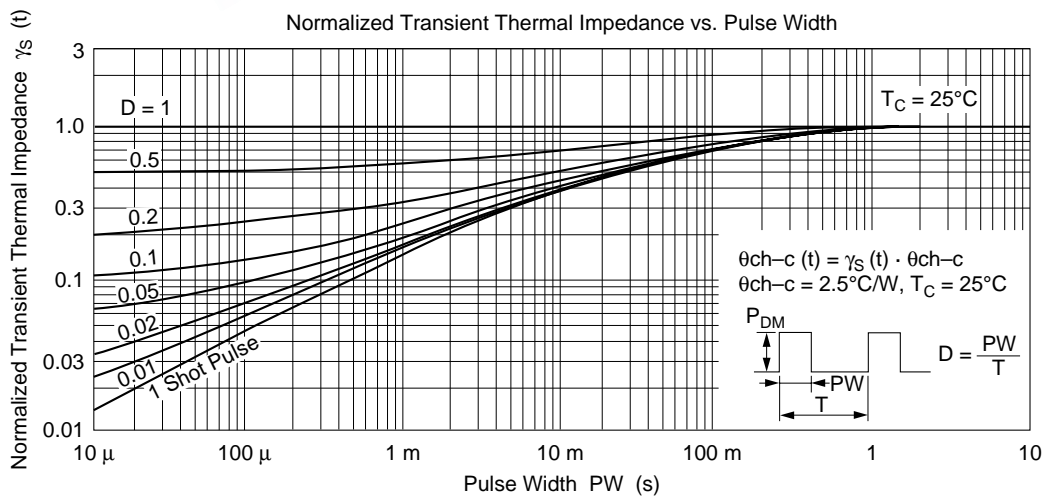
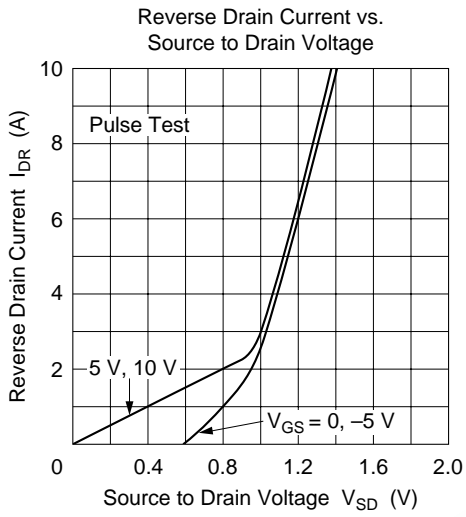
Item	Symbol	Min	Typ	Max	Unit	Test conditions
Drain to source breakdown voltage	$V_{(BR)DSS}$	250	—	—	V	$I_D = 10 \text{ mA}$, $V_{GS} = 0$
Gate to source breakdown voltage	$V_{(BR)GSS}$	± 20	—	—	V	$I_G = \pm 100 \text{ }\mu\text{A}$, $V_{DS} = 0$
Gate to source leak current	I_{GSS}	—	—	± 10	μA	$V_{GS} = \pm 16 \text{ V}$, $V_{DS} = 0$
Zero gate voltage drain current	I_{DSS}	—	—	250	μA	$V_{DS} = 200 \text{ V}$, $V_{GS} = 0$
Gate to source cutoff voltage	$V_{GS(off)}$	2.0	—	4.0	V	$I_D = 1 \text{ mA}$, $V_{DS} = 10 \text{ V}$
Static drain to source on state resistance	$R_{DS(on)}$	—	0.40	0.55	Ω	$I_D = 4 \text{ A}$, $V_{GS} = 10 \text{ V}^*$
Forward transfer admittance	$ y_{fs} $	2.7	4.5	—	S	$I_D = 4 \text{ A}$, $V_{DS} = 10 \text{ V}^*$
Input capacitance	C_{iss}	—	820	—	pF	$V_{DS} = 10 \text{ V}$, $V_{GS} = 0$,
Output capacitance	C_{oss}	—	370	—	pF	$f = 1 \text{ MHz}$
Reverse transfer capacitance	C_{rss}	—	115	—	pF	
Turn-on delay time	$t_{d(on)}$	—	12	—	ns	$I_D = 4 \text{ A}$, $V_{GS} = 10 \text{ V}$,
Rise time	t_r	—	48	—	ns	$R_L = 7.5 \text{ }\Omega$
Turn-off delay time	$t_{d(off)}$	—	70	—	ns	
Fall time	t_f	—	50	—	ns	
Body to drain diode forward voltage	V_{DF}	—	1.2	—	V	$I_F = 7 \text{ A}$, $V_{GS} = 0$
Body to drain diode reverse recovery time	t_{rr}	—	400	—	ns	$I_F = 7 \text{ A}$, $V_{GS} = 0$, $di_F/dt = 50 \text{ A}/\mu\text{s}$

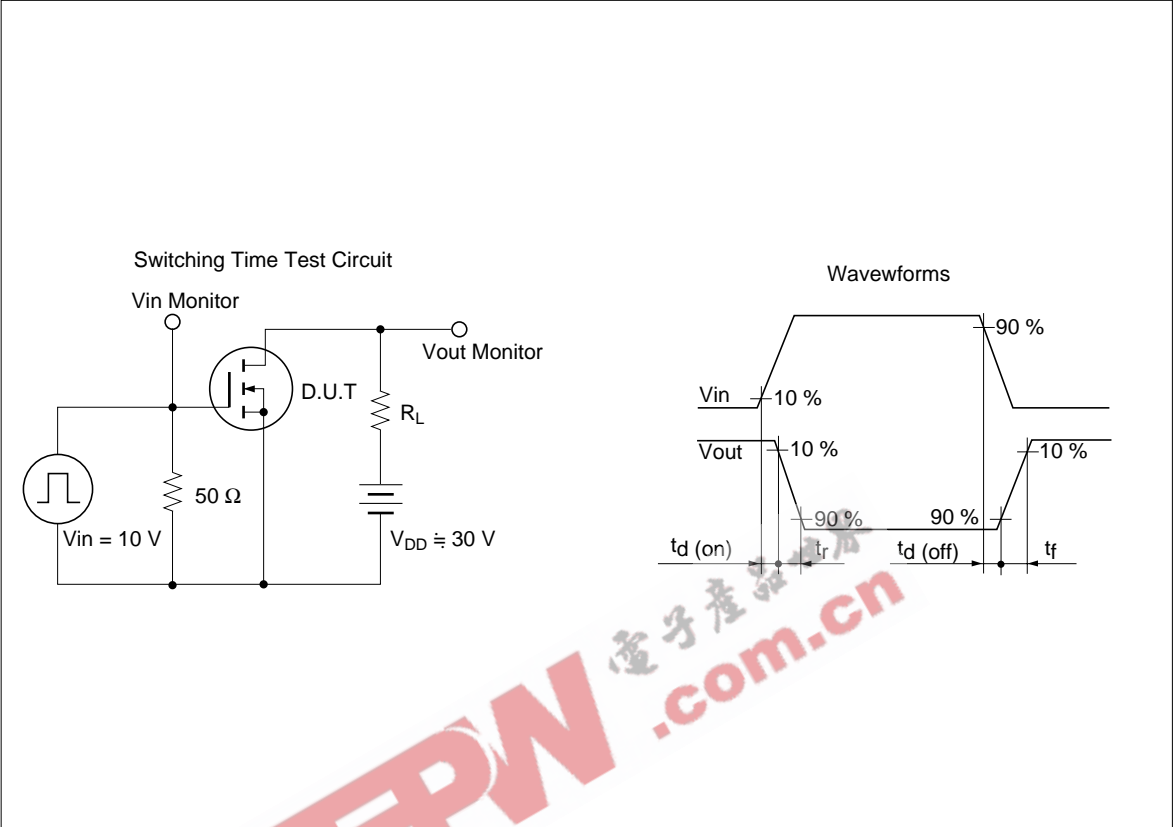
* Pulse Test











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