
2SK2684(L), 2SK2684(S)

Silicon N Channel DV-L MOS FET
High Speed Power Switching

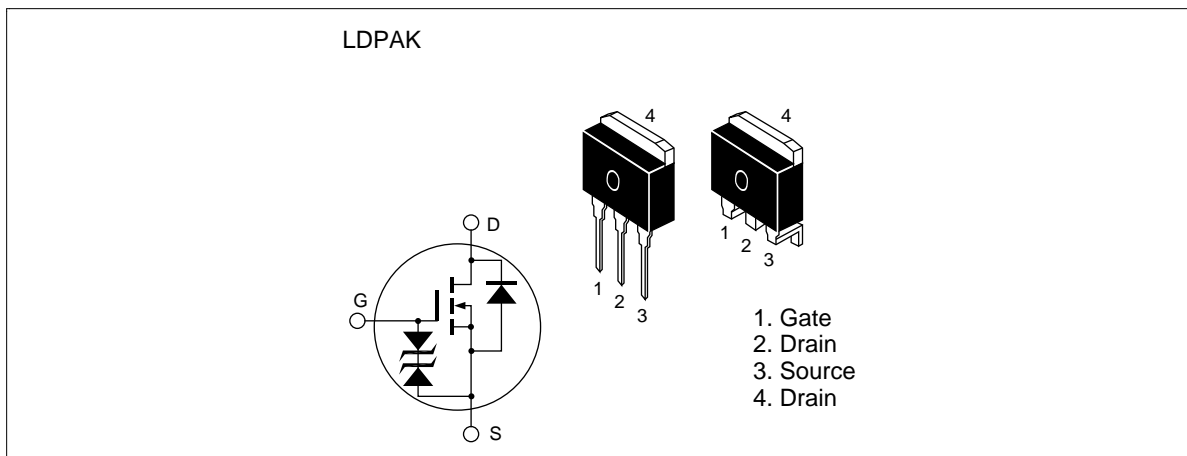
HITACHI

ADE-208-542(Z)
1st. Edition
September 1997

Features

- Low on-resistance
 $R_{DS(on)} = 20 \text{ m}\Omega$ typ. ($V_{GS} = 10\text{V}$, $I_D = 15 \text{ A}$)
- 4V gate drive devices.
- High speed switching

Outline



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Absolute Maximum Ratings (Ta = 25°C)

Item	Symbol	Ratings	Unit
Drain to source voltage	V _{DSS}	30	V
Gate to source voltage	V _{GSS}	±20	V
Drain current	I _D	30	A
Drain peak current	I _{D(pulse)} *1	120	A
Body to drain diode reverse drain current	I _{DR}	30	A
Channel dissipation	Pch*2	50	W
Channel temperature	Tch	150	°C
Storage temperature	Tstg	-55 to +150	°C

Notes: 1. PW ≤ 10μs, duty cycle ≤ 1 %
2. Value at Tc = 25°C

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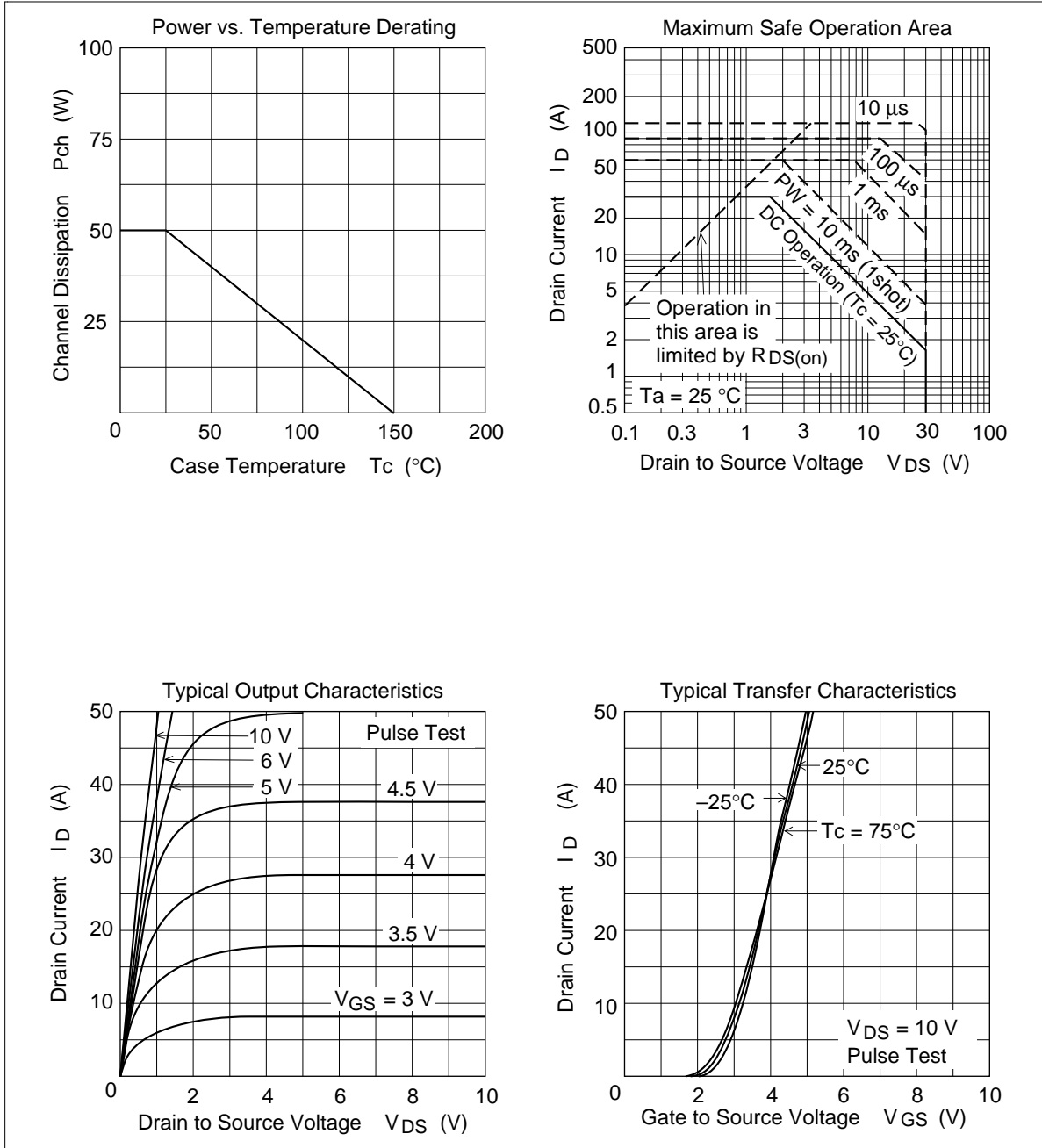
Electrical Characteristics (Ta = 25°C)

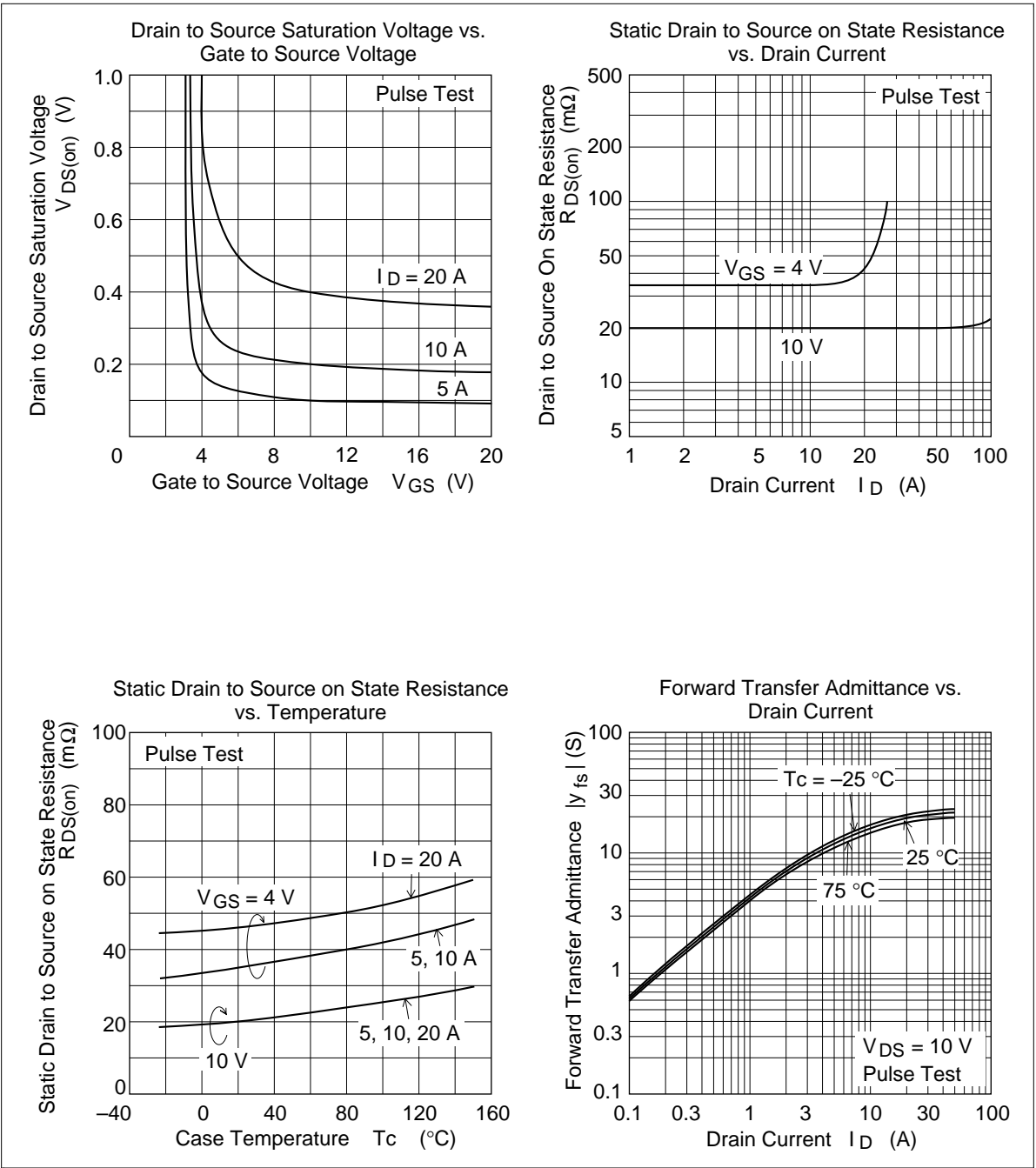
Item	Symbol	Min	Typ	Max	Unit	Test Conditions
Drain to source breakdown voltage	$V_{(BR)DSS}$	30	—	—	V	$I_D = 10\text{mA}, V_{GS} = 0$
Gate to source breakdown voltage	$V_{(BR)GSS}$	±20	—	—	V	$I_G = \pm 100\mu\text{A}, V_{DS} = 0$
Zero gate voltage drain current	I_{DSS}	—	—	10	μA	$V_{DS} = 30\text{V}, V_{GS} = 0$
Gate to source leak current	I_{GSS}	—	—	±10	μA	$V_{GS} = \pm 16\text{V}, V_{DS} = 0$
Gate to source cutoff voltage	$V_{GS(off)}$	1.0	—	2.0	V	$I_D = 1\text{mA}, V_{DS} = 10\text{V}$
Static drain to source on state resistance	$R_{DS(on)}$	—	20	28	mΩ	$I_D = 15\text{A}, V_{GS} = 10\text{V}^{*1}$
	$R_{DS(on)}$	—	35	50	mΩ	$I_D = 15\text{A}, V_{GS} = 4\text{V}^{*1}$
Forward transfer admittance	$ y_{fs} $	12	18	—	S	$I_D = 15\text{A}, V_{DS} = 10\text{V}^{*1}$
Input capacitance	C_{iss}	—	750	—	pF	$V_{DS} = 10\text{V}$
Output capacitance	C_{oss}	—	520	—	pF	$V_{GS} = 0$
Reverse transfer capacitance	C_{rss}	—	210	—	pF	$f = 1\text{MHz}$
Turn-on delay time	$t_{d(on)}$	—	16	—	ns	$V_{GS} = 10\text{V}, I_D = 15\text{A}$
Rise time	t_r	—	260	—	ns	$R_L = 0.67\Omega$
Turn-off delay time	$t_{d(off)}$	—	85	—	ns	
Fall time	t_f	—	90	—	ns	
Body to drain diode forward voltage	V_{DF}	—	1.0	—	V	$I_F = 30\text{A}, V_{GS} = 0$
Body to drain diode reverse recovery time	t_{rr}	—	45	—	ns	$I_F = 30\text{A}, V_{GS} = 0$ $di_F/dt = 50\text{A}/\mu\text{s}$

Note: 1. Pulse test

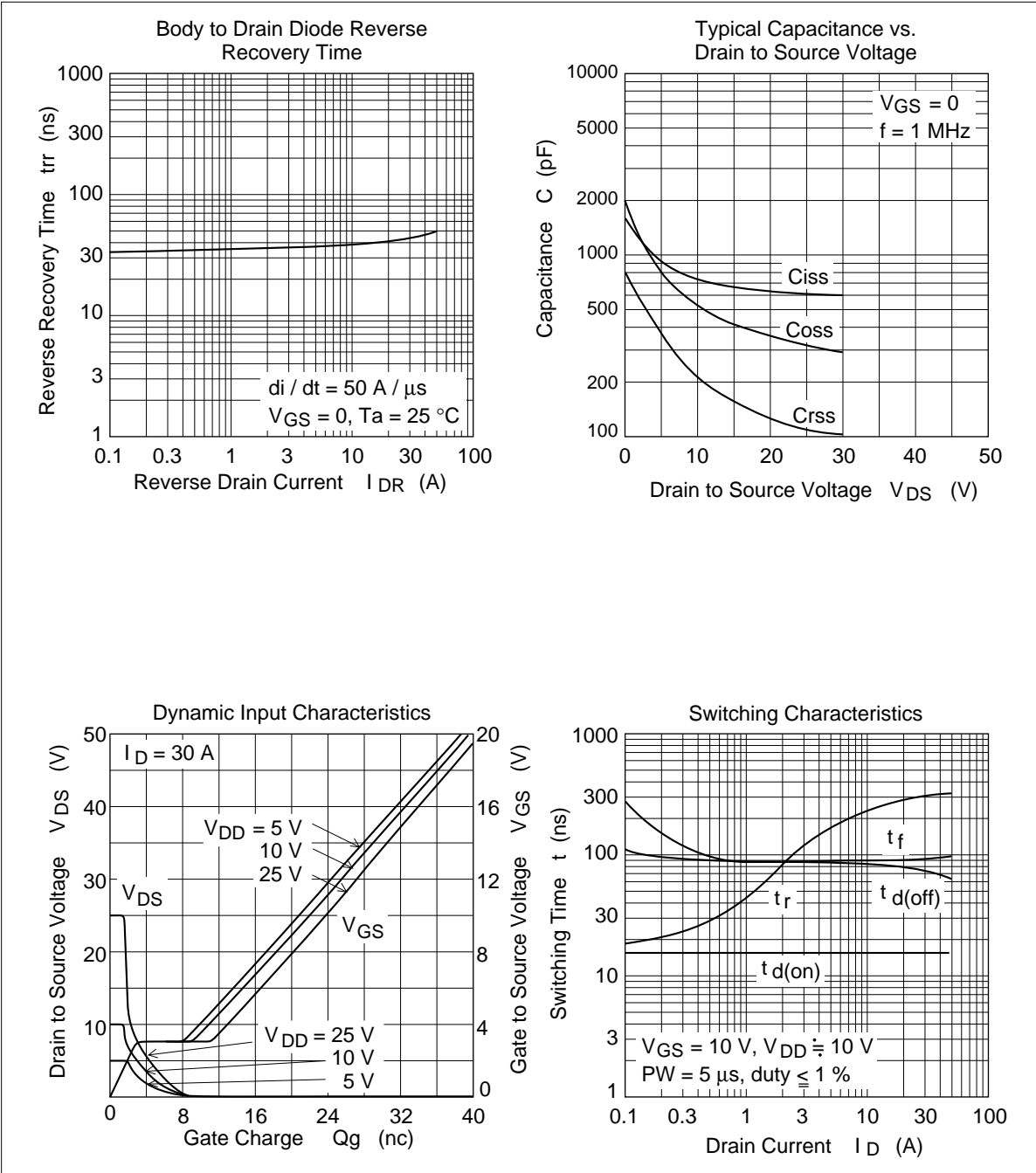
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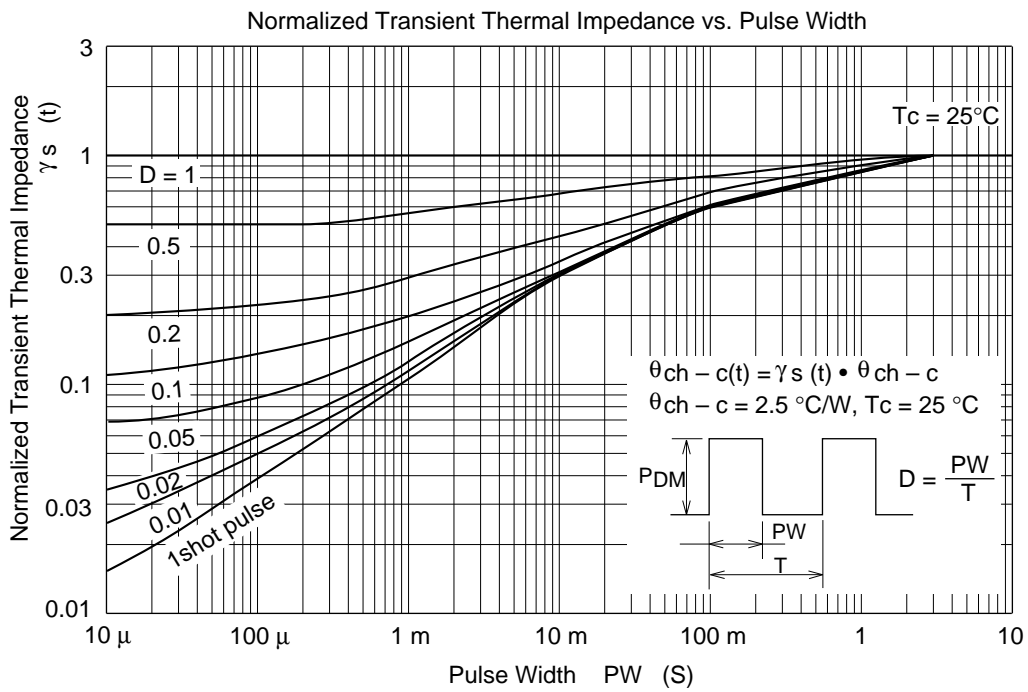
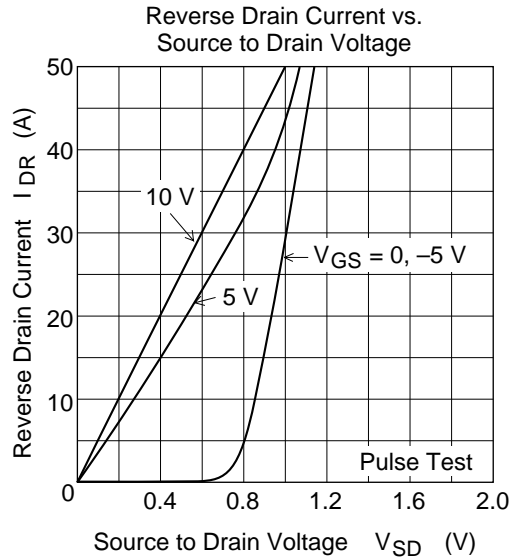
Main Characteristics



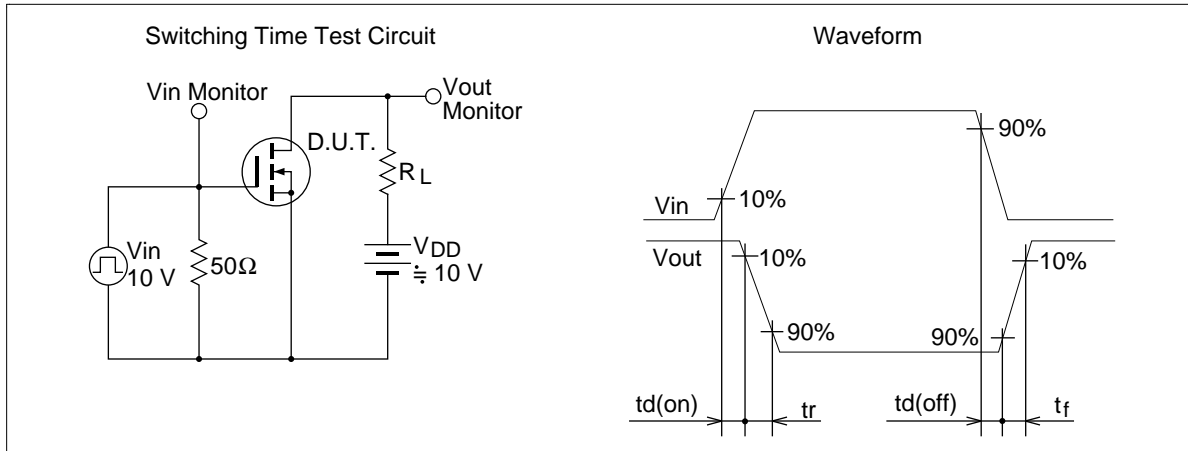


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