2SK3048

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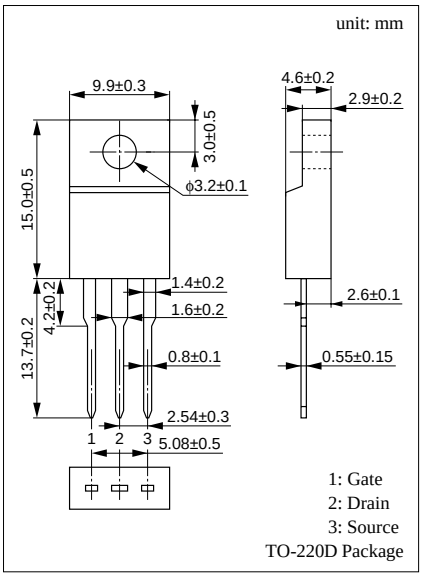
Silicon N-Channel Power F-MOS FET

■ Features

- Avalanche energy capacity guaranteed
- High-speed switching
- Low ON-resistance
- No secondary breakdown

■ Applications

- Contactless relay
- Diving circuit for a solenoid
- Driving circuit for a motor
- Control equipment
- Switching power supply



■ Absolute Maximum Ratings (T_C = 25°C)

Parameter		Symbol	Ratings	Unit
Drain to Source breakdown voltage		V_{DSS}	600	V
Gate to Source voltage		V_{GSS}	±30	V
Drain current	DC	I_D	±3	A
	Pulse	I_{DP}	±6	A
Avalanche energy capacity		EAS*	22.5	mJ
Allowable power dissipation	T_C = 25°C	P_D	35	W
	Ta = 25°C		2	
Channel temperature		T_{ch}	150	°C
Storage temperature		T_{stg}	–55 to +150	°C

* L = 5mH, I_L = 3A, 1 pulse

■ Electrical Characteristics (T_C = 25°C)

Parameter	Symbol	Conditions	min	typ	max	Unit
Drain to Source cut-off current	I_{DSS}	V_{DS} = 480V, V_{GS} = 0			100	µA
Gate to Source leakage current	I_{GSS}	V_{GS} = ±30V, V_{DS} = 0			±1	µA
Drain to Source breakdown voltage	V_{DSS}	I_D = 1mA, V_{GS} = 0	600			V
Gate threshold voltage	V_{th}	V_{DS} = 25V, I_D = 1mA	2		5	V
Drain to Source ON-resistance	$R_{DS(on)}$	V_{GS} = 10V, I_D = 2A		1.7	2.5	Ω
Forward transfer admittance	$\|Y_{fs}\|$	V_{DS} = 25V, I_D = 2A	1.5	2.5		S
Diode forward voltage	V_{DSF}	I_{DR} = 3A, V_{GS} = 0			–1.5	V
Input capacitance (Common Source)	C_{iss}	V_{DS} = 20V, V_{GS} = 0, f = 1MHz		750		pF
Output capacitance (Common Source)	C_{oss}			80		pF
Reverse transfer capacitance (Common Source)	C_{rss}			25		pF
Turn-on time (delay time)	$t_{d(on)}$	V_{DD} = 200V, I_D = 2A, V_{GS} = 10V, R_L = 100Ω		15		ns
Rise time	t_r			25		ns
Turn-off time (delay time)	$t_{d(off)}$			90		ns
Fall time	t_f			40		ns

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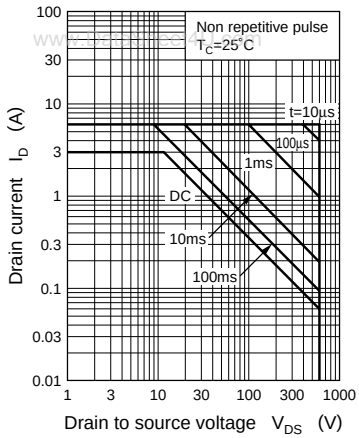
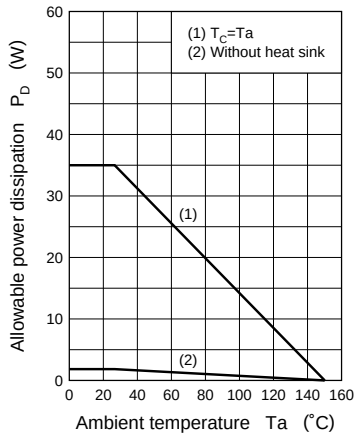
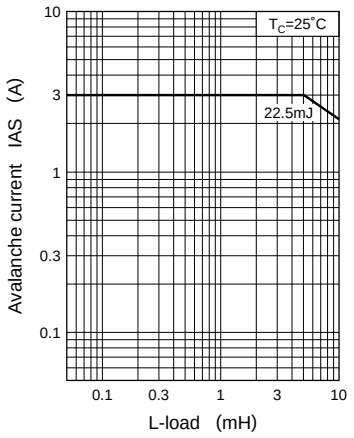
Area of safe operation (ASO)



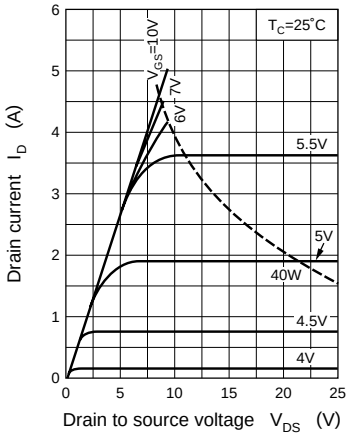
P_D — Ta



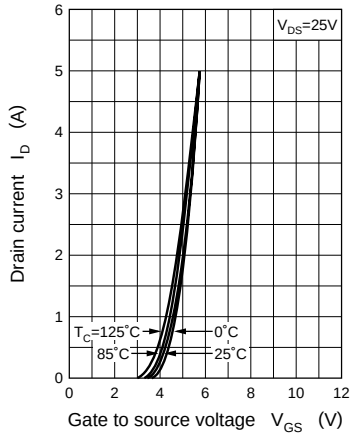
IAS — L-load



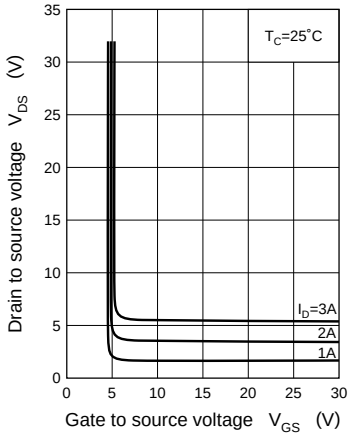
I_D — V_{DS}



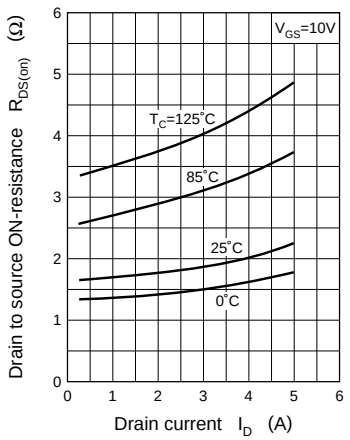
I_D — V_{GS}



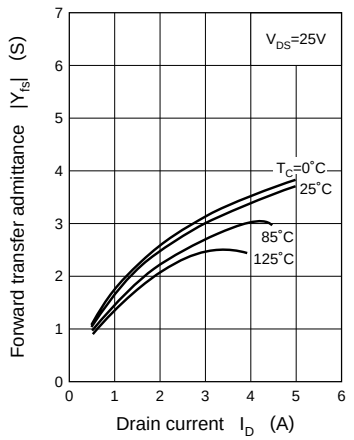
V_{DS} — V_{GS}



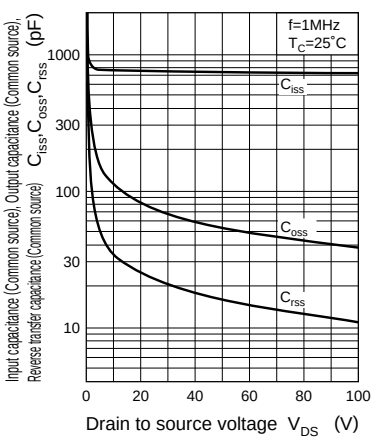
$R_{DS(on)}$ — I_D



$|Y_{fs}|$ — I_D



C_{iss}, C_{oss}, C_{rss} — V_{DS}



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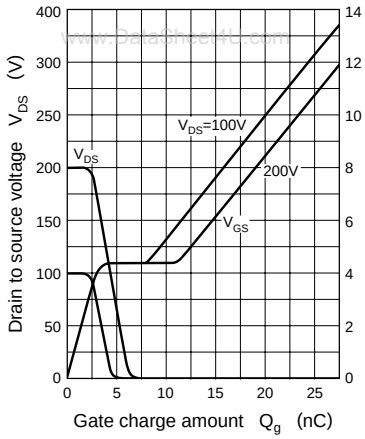
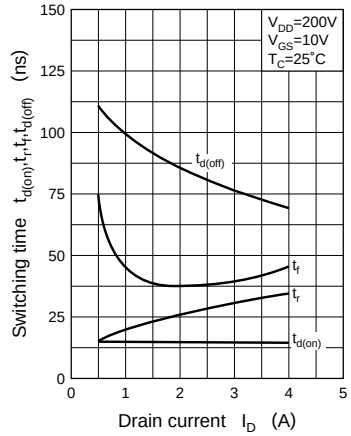
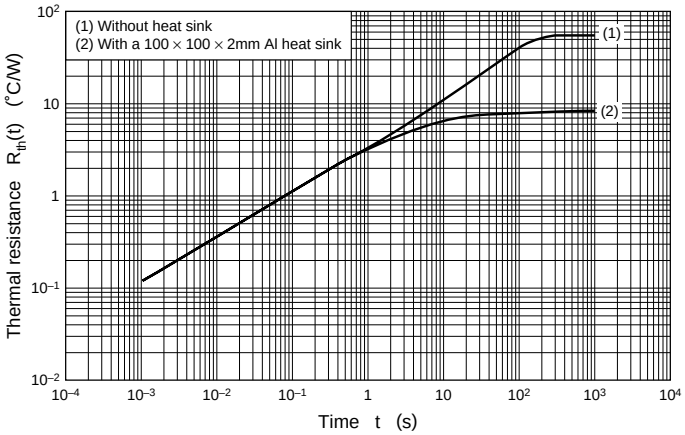
V_{DS}, V_{GS} — Q_g



$t_{d(on)}$, t_r, t_f, $t_{d(off)}$ — I_D



$R_{th(t)}$ — t



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