

2SK1036

Silicon N-Channel Power F-MOS

■ Features

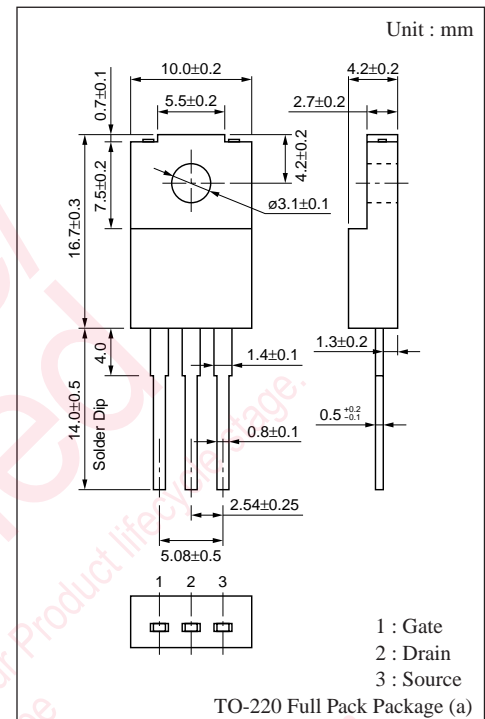
- Low ON-resistance $R_{DS(on)}$: $R_{DS(on)} = 0.23\Omega$ (typ)
- High-speed switching : $t_f = 80\text{ns}$ (typ)
- No secondary breakdown

■ Applications

- DC-DC converter
- Non-contact relay
- Solenoid drive
- Motor drive

■ Absolute Maximum Ratings ($T_c = 25^\circ\text{C}$)

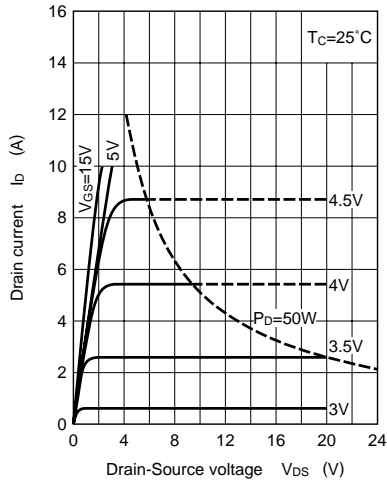
Parameter	Symbol	Rating	Unit	
Drain-Source breakdown voltage	V_{DSS}	250	V	
Gate-Source voltage	V_{GSS}	± 20	V	
Drain current	DC	I_D	± 10	A
	Pulse	I_{DP}	± 20	A
Allowable power dissipation	$T_{CC} = 25^\circ\text{C}$	P_D	50	W
	$T_{aC} = 25^\circ\text{C}$		2	
Channel temperature	T_{ch}	150	$^\circ\text{C}$	
Storage temperature	T_{stg}	-55 to +150	$^\circ\text{C}$	



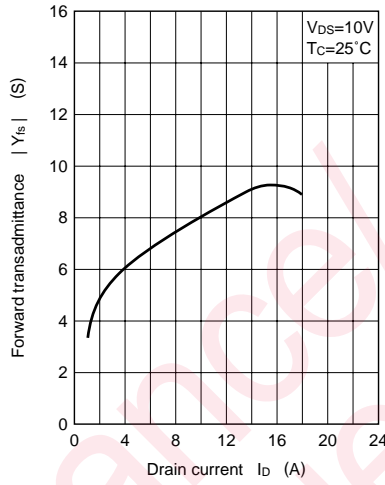
■ Electrical Characteristics ($T_c = 25^\circ\text{C}$)

Parameter	Symbol	Condition	Min	Typ	Max	Unit	
Drain-Source cut-off current	I_{DSS}	$V_{DS} = 200\text{V}, V_{GS} = 0$			0.1	mA	
Gate-Source leakage current	I_{GSS}	$V_{GS} = \pm 20\text{V}, V_{DS} = 0$			± 1	μA	
Drain-Source breakdown voltage	V_{DSS}	$I_D = 1\text{mA}, V_{GS} = 0$	250			V	
Gate threshold voltage	V_{th}	$V_{DS} = 10\text{V}, I_D = 1\text{mA}$	1		5	V	
Drain-Source ON-resistance	$R_{DS(on)}$	$V_{GS} = 10\text{V}, I_D = 5\text{A}$		0.23	0.3	Ω	
Forward transadmittance	$ Y_{fs} $	$V_{DS} = 10\text{V}, I_D = 5\text{A}$	4	6.5		S	
Input capacitance	C_{iss}	$V_{DS} = 10\text{V}, V_{GS} = 0, f = 1\text{MHz}$		1500		pF	
Output capacitance	C_{oss}				340		pF
Feedback capacitance	C_{rss}				130		pF
Turn-on time	t_{on}				60		ns
Fall time	t_f	$V_{GS} = 10\text{V}, I_D = 5\text{A}$		80		ns	
Turn-off time (delay time)	$t_{d(off)}$	$V_{DD} = 100\text{V}, R_L = 20\Omega$		240		ns	

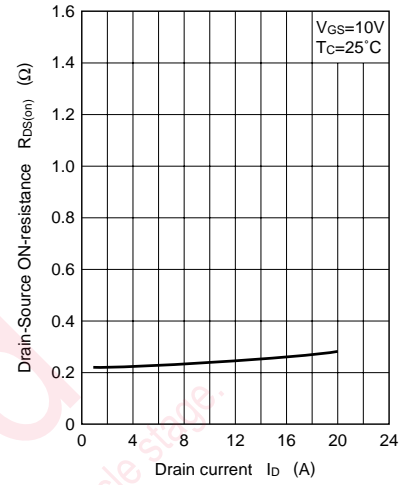
$I_D - V_{DS}$



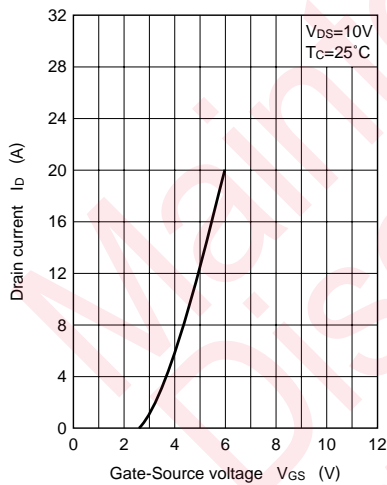
$|Y_{fs}| - I_D$



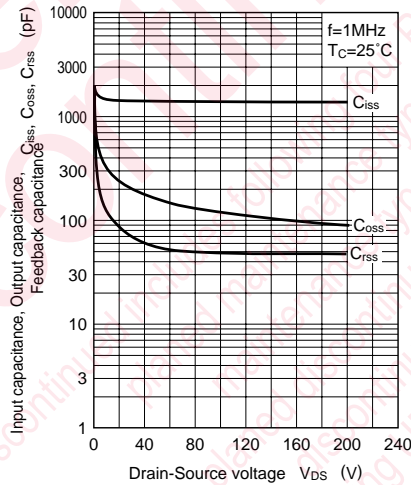
$R_{DS(on)} - I_D$



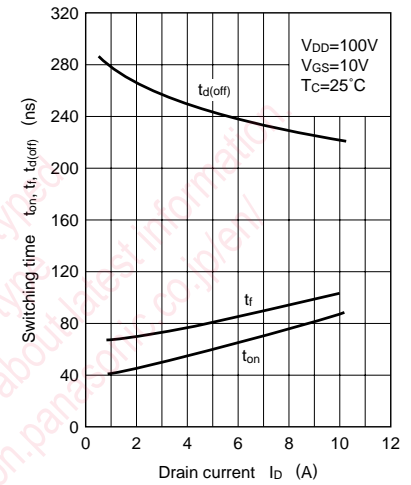
$I_D - V_{GS}$



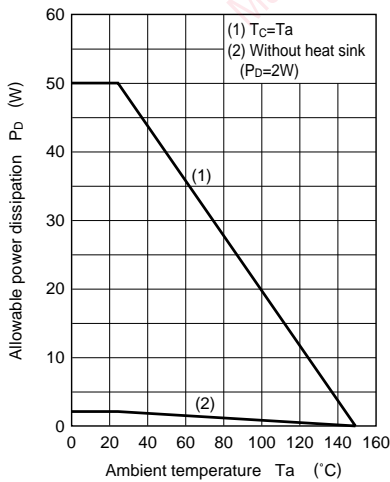
$C_{iss}, C_{oss}, C_{rss} - V_{DS}$



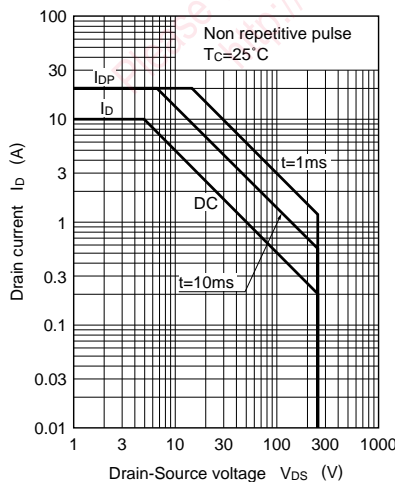
$t_{on}, t_f, t_d(off) - I_D$



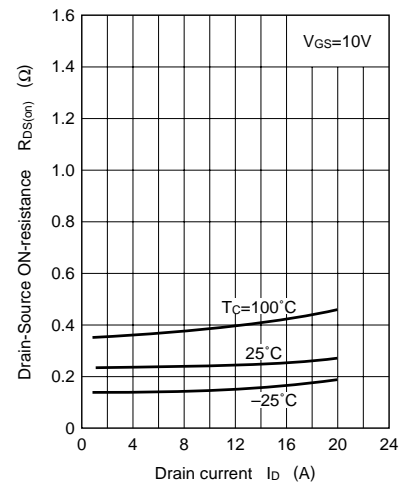
$P_D - T_a$



Area of safe operation (ASO)



$R_{DS(on)} - I_D$



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