

2SK870

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Silicon N-channel Power F-MOS FET

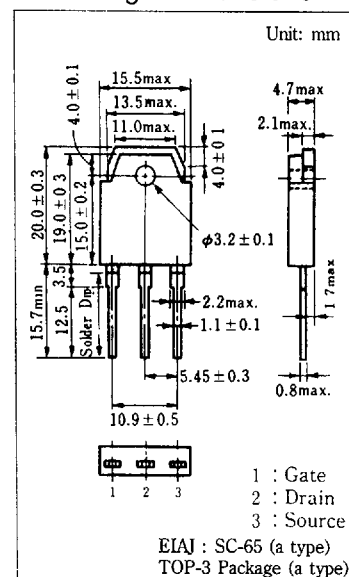
■ Features

- Low ON resistance $R_{DS(on)}$: $R_{DS(on)} = 0.23\Omega$ (typ.)
- High switching rate : $t_f = 140\text{ns}$ (typ.)
- No secondary breakdown
- High breakdown voltage, large power

■ Application

- No contact relay
- Solenoid drive
- Motor drive
- Control equipment
- Switching power source

■ Package Dimensions



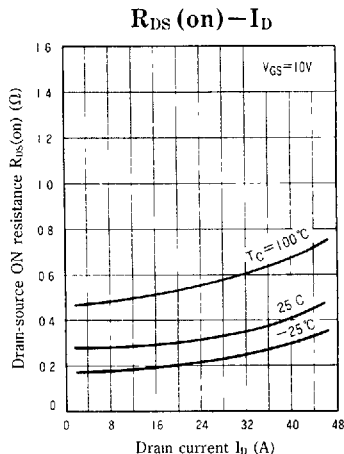
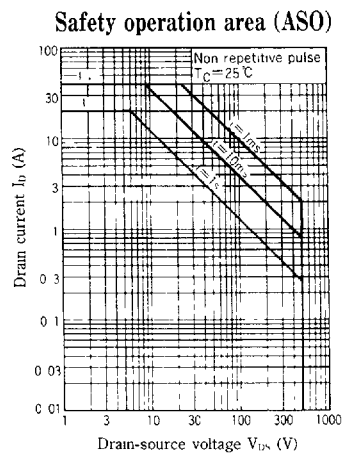
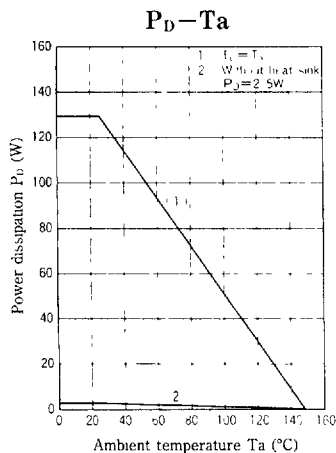
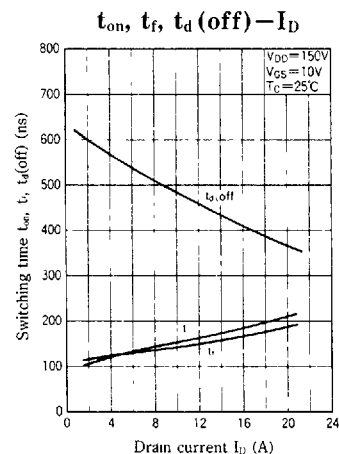
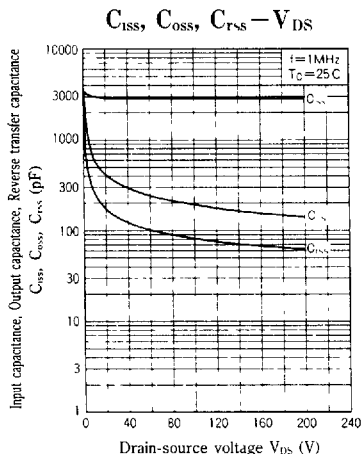
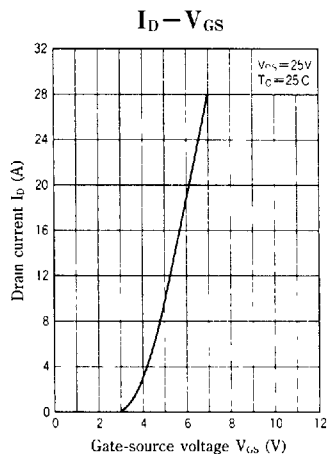
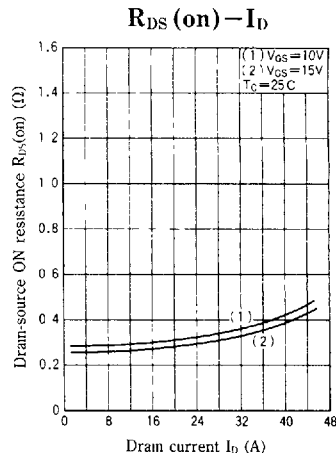
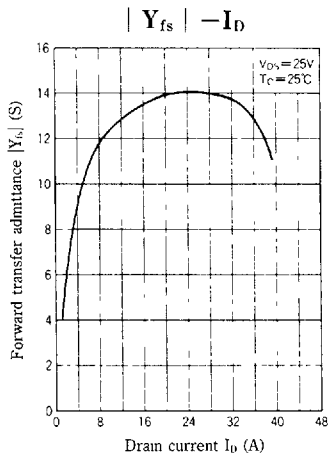
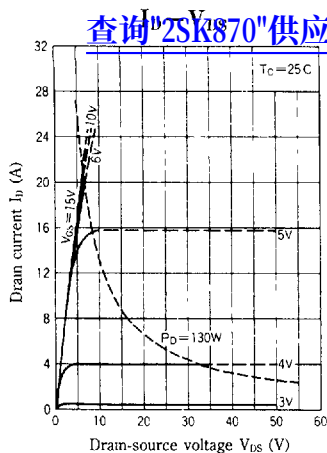
■ Absolute Maximum Ratings ($T_c = 25^\circ\text{C}$)

Item	Symbol	Value	Unit
Drain-source voltage	V_{DS}	500	V
Gate-source voltage	V_{GS}	± 20	V
Drain current	DC I_D	20	A
	Peak-to-peak value I_{DP}	40	
Power dissipation	$T_c = 25^\circ\text{C}$ P_D	130	W
	$T_a = 25^\circ\text{C}$	25	
Channel temperature	T_{ch}	150	$^\circ\text{C}$
Storage temperature	T_{stg}	$-55 \sim +150$	$^\circ\text{C}$

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

Item	Symbol	Condition	min.	typ.	max.	Unit
Drain current	I_{DS}	$V_{DS} = 400\text{V}$, $V_{GS} = 0$			0.1	mA
Gate-source current	I_{GS}	$V_{GS} = \pm 20\text{V}$, $V_{DS} = 0$			± 1	μA
Drain-source voltage	V_{DS}	$I_D = 1\text{mA}$, $V_{GS} = 0$	500			V
Gate threshold voltage	V_{th}	$V_{DS} = 25\text{V}$, $I_D = 1\text{mA}$	1		5	V
Drain-source ON resistance	$R_{DS(on)}$	$V_{GS} = 10\text{V}$, $I_D = 10\text{A}$		0.23	0.40	Ω
Drain-source ON voltage	$V_{DS(on)}$	$V_{GS} = 10\text{V}$, $I_D = 20\text{A}$			9.0	V
Forward transfer admittance	$ Y_{fs} $	$V_{DS} = 25\text{V}$, $I_D = 10\text{A}$	7.2	12.0		S
Input capacitance	C_{iss}	$V_{DS} = 20\text{V}$, $V_{GS} = 0$, $f = 1\text{MHz}$		3000		pF
Output capacitance	C_{oss}			430		pF
Reverse transfer capacitance	C_{rss}			175		pF
Turn-on time	t_{on}	$V_{GS} = 10\text{V}$, $I_D = 10\text{A}$ $V_{DD} = 150\text{V}$, $R_L = 15\Omega$		150		ns
Fall time	t_f			140		ns
Delay time	$t_d(\text{off})$			480		ns

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