

# 2SK2325

## 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

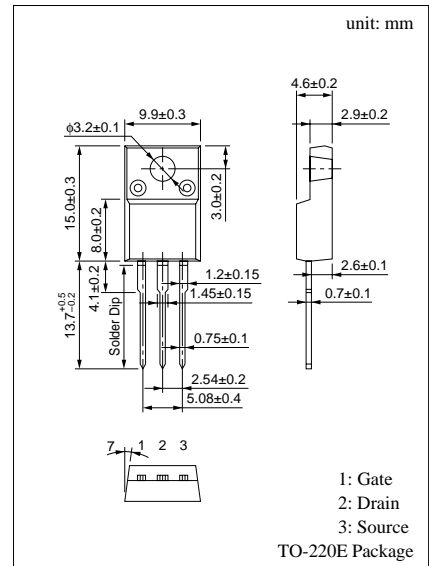
### ■ Absolute Maximum Ratings (T<sub>C</sub> = 25°C)

Parameter	Symbol	Rated	Unit
Drain to Source breakdown voltage	V <sub>DSS</sub>	600	V
Gate to Source voltage	V <sub>GSS</sub>	±30	V
Drain current	DC	I <sub>D</sub>	±3 A
	Pulse	I <sub>DP</sub>	±6 A
Avalanche energy capacity	EAS*	22.5	mJ
Allowable power dissipation	T <sub>C</sub> = 25°C	P <sub>D</sub>	40
	T <sub>a</sub> = 25°C		2
Channel temperature	T <sub>ch</sub>	150	°C
Storage temperature	T <sub>stg</sub>	-55 to +150	°C

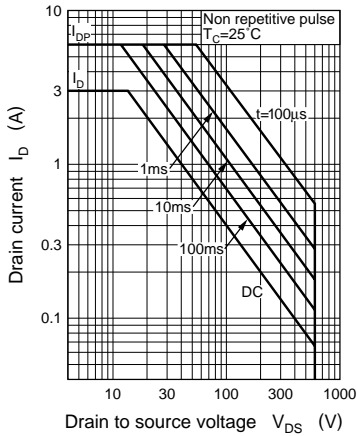
\* L = 5mH, I<sub>L</sub> = 3A, 1 pulse

### ■ Electrical Characteristics (T<sub>C</sub> = 25°C)

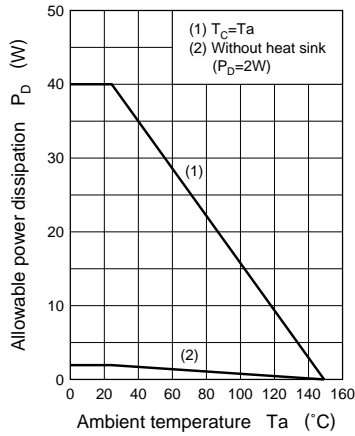
Parameter	Symbol	Conditions	min	typ	max	Unit
Drain to Source cut-off current	I <sub>DSS</sub>	V <sub>DS</sub> = 480V, V <sub>GS</sub> = 0			100	μA
Gate to Source leakage current	I <sub>GSS</sub>	V <sub>GS</sub> = ±30V, V <sub>DS</sub> = 0			±1	μA
Drain to Source breakdown voltage	V <sub>DSS</sub>	I <sub>D</sub> = 1mA, V <sub>GS</sub> = 0	600			V
Gate threshold voltage	V <sub>th</sub>	V <sub>DS</sub> = 25V, I <sub>D</sub> = 1mA	2		5	V
Drain to Source ON-resistance	R <sub>DS(on)</sub>	V <sub>GS</sub> = 10V, I <sub>D</sub> = 2A		1.7	2.5	Ω
Forward transfer admittance	Y <sub>fs</sub>	V <sub>DS</sub> = 25V, I <sub>D</sub> = 2A	1.5	2.5		S
Diode forward voltage	V <sub>DSF</sub>	I <sub>DR</sub> = 3A, V <sub>GS</sub> = 0			-1.5	V
Input capacitance (Common Source)	C <sub>iss</sub>	V <sub>DS</sub> = 20V, V <sub>GS</sub> = 0, f = 1MHz		750		pF
Output capacitance (Common Source)	C <sub>oss</sub>			80		pF
Reverse transfer capacitance (Common Source)	C <sub>rss</sub>			25		pF
Turn-on time (delay time)	t <sub>d(on)</sub>	V <sub>DD</sub> = 200V, I <sub>D</sub> = 2A V <sub>GS</sub> = 10V, R <sub>L</sub> = 100Ω		15		ns
Rise time	t <sub>r</sub>			25		ns
Fall time	t <sub>f</sub>			40		ns
Turn-off time (delay time)	t <sub>d(off)</sub>			90		ns
Thermal resistance between channel and case	R <sub>th(ch-c)</sub>				3.125	°C/W
Thermal resistance between channel and atmosphere	R <sub>th(ch-a)</sub>				62.5	°C/W



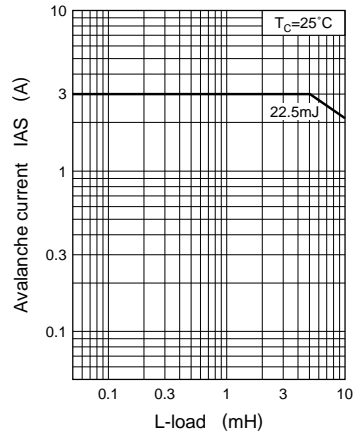
Area of safe operation (ASO)



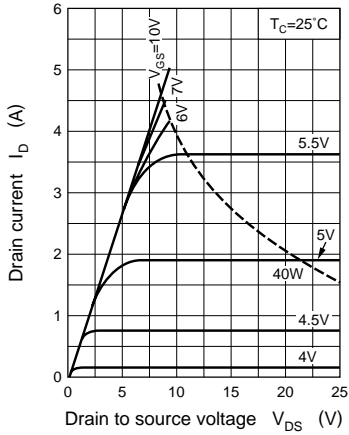
$P_D - T_a$



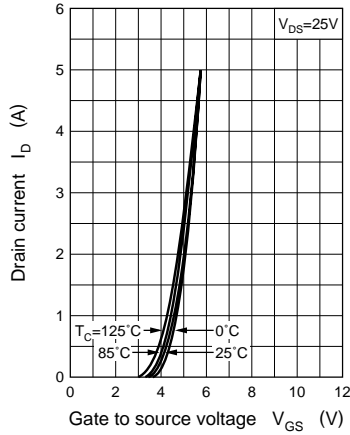
IAS — L-load



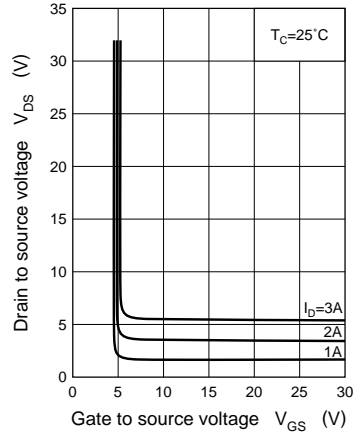
$I_D - V_{DS}$



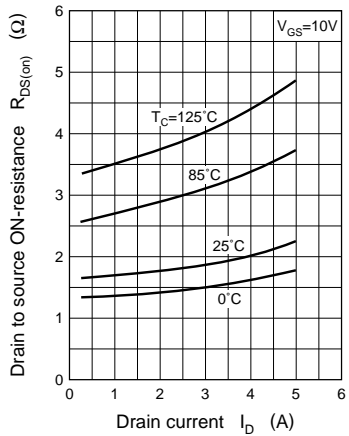
$I_D - V_{GS}$



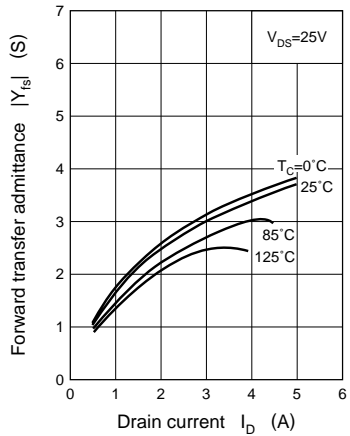
$V_{DS} - V_{GS}$



$R_{DS(on)} - I_D$



$|Y_{fs}| - I_D$



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

