

2SK2580(Tentative)

Silicon N-Channel Power F-MOS

■ Features

- Avalanche energy capability guaranteed
- High-speed switching
- Low ON-resistance
- No secondary breakdown
- Low-voltage drive

■ Applications

- Non-contact relay
- Solenoid drive
- Motor drive
- Control equipment
- Switching mode regulator

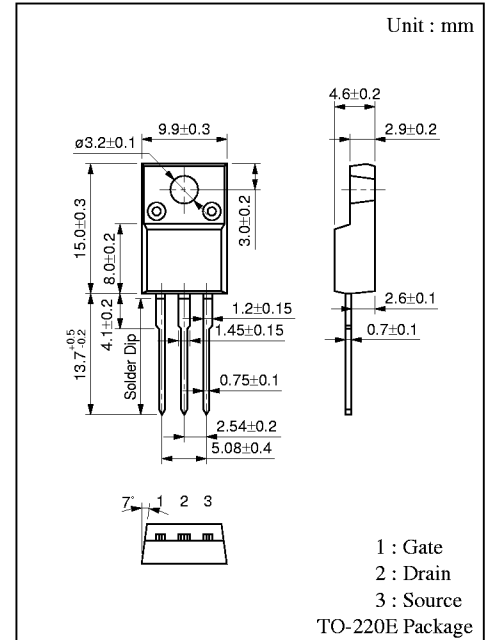
■ Absolute Maximum Ratings (T_c = 25°C)

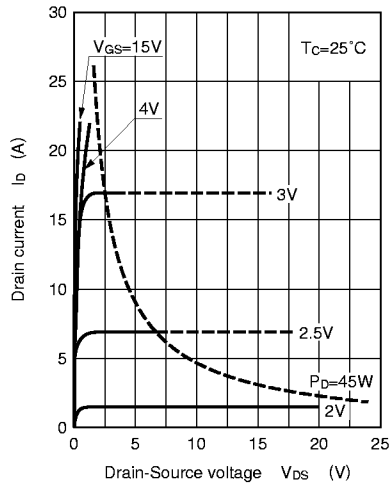
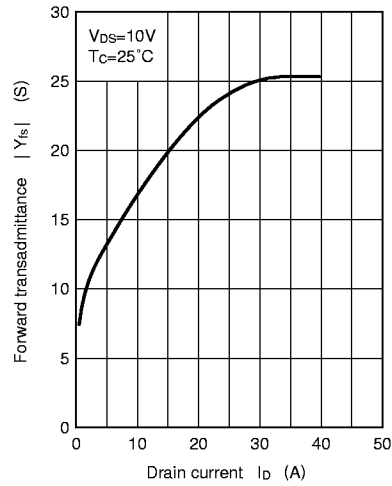
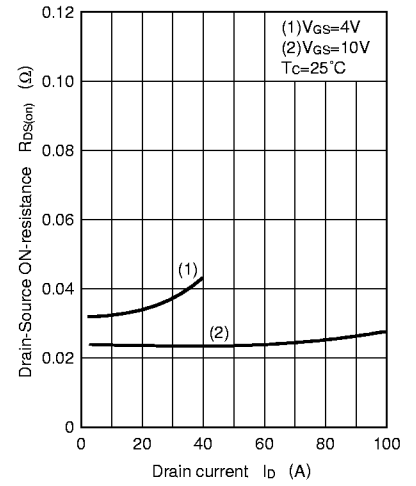
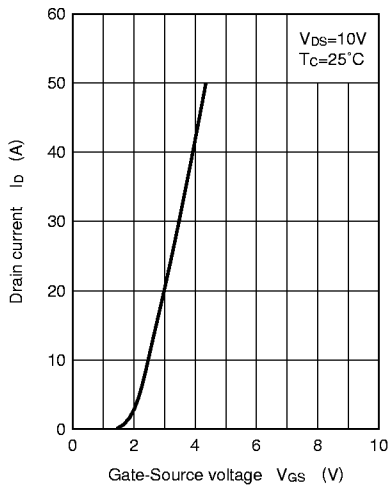
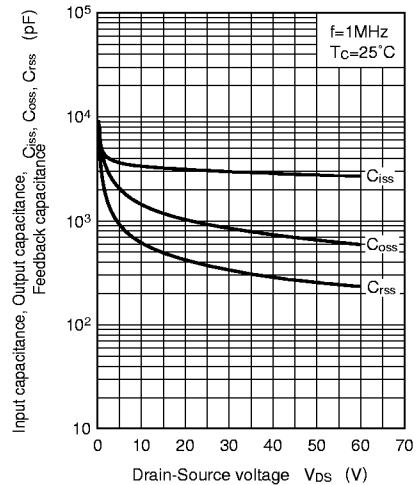
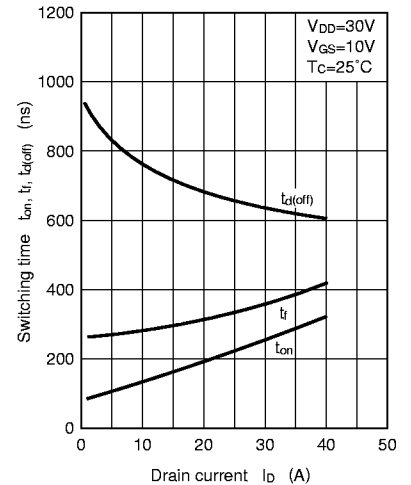
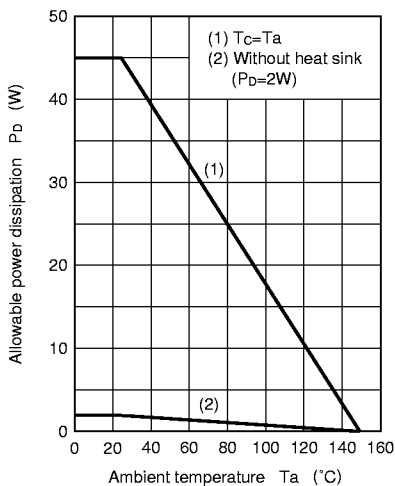
Parameter	Symbol	Rating	Unit
Drain-Source breakdown voltage	V _{DSS}	60	V
Gate-Source voltage	V _{GSS}	±20	V
Drain current	DC	I _D	±40
	Pulse	I _{DP}	±80
Avalanche energy capability	EAS *	20	mJ
Allowable power dissipation	T _C = 25°C	P _D	45
	T _a = 25°C		2
Channel temperature	T _{ch}	150	°C
Storage temperature	T _{stg}	-55 to +150	°C

* L= 0.1mH, I_L= 20A, 1 pulse

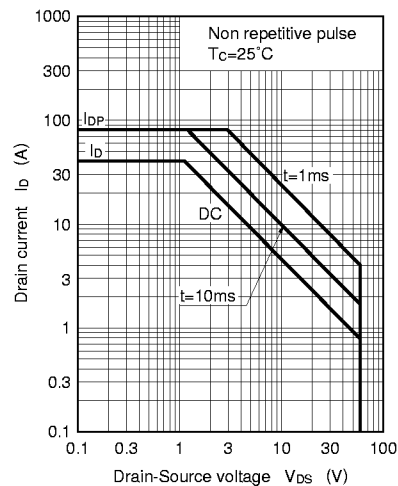
■ Electrical Characteristics (T_c = 25°C)

Parameter	Symbol	Condition	Min	Typ	Max	Unit
Drain-Source cut-off current	I _{DSS}	V _{DS} = 40V, V _{GS} = 0			10	μA
Gate-Source leakage current	I _{GSS}	V _{GS} =±20V, V _{DS} = 0			±1	μA
Drain-Source breakdown voltage	V _{DSS}	I _D =1mA, V _{GS} = 0	60			V
Gate threshold voltage	V _{th}	V _{DS} =10V, I _D =1mA	1		2.5	V
Drain-Source ON-resistance	R _{DS(on)1}	V _{GS} =10V, I _D = 20A		24	35	mΩ
	R _{DS(on)2}	V _{GS} = 4V, I _D =10A		33	50	mΩ
Forward transadmittance	Y _{fs}	V _{DS} =10V, I _D = 20A	13	22		S
Diode forward voltage	V _{DSF}	I _{DR} = 20A, V _{GS} = 0			-1.7	V
Input capacitance	C _{iss}	V _{DS} =10V, V _{GS} = 0, f=1MHz		3200		pF
Output capacitance	C _{oss}			1400		pF
Feedback capacitance	C _{rss}			600		pF
Turn-on time	t _{on}	V _{DD} = 30V, I _D = 20A V _{GS} =10V, R _L =1.5Ω		200		ns
Fall time	t _f			320		ns
Turn-off time (delay time)	t _{d(off)}			690		ns
Channel-Case heat resistance	R _{th(ch-c)}				2.78	°C/W
Channel-Atmosphere heat resistance	R _{th(ch-a)}				62.5	°C/W



$I_D - V_{DS}$  $|Y_{fs}| - I_D$  $R_{DS(on)} - I_D$  $I_D - V_{GS}$  $C_{iss}, C_{oss}, C_{rss} - V_{DS}$  $t_{on}, t_r, t_f, t_d(off) - I_D$  $P_D - T_a$ 

Area of safe operation (ASO)

 $R_{DS(on)} - I_D$ 