

2SK2538

Silicon N-Channel Power F-MOS

■ Features

- Avalanche energy capability guaranteed
- High-speed switching
- No secondary breakdown

■ Applications

- High-speed switching (switching mode regulator)
- For high-frequency power amplification

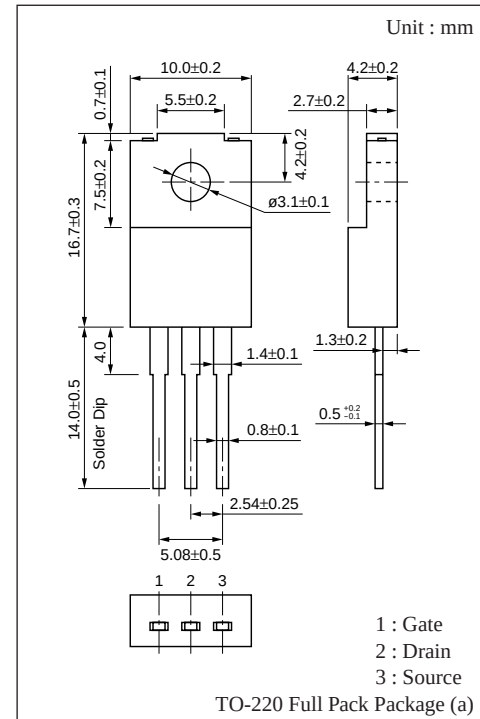
■ Absolute Maximum Ratings (T_C = 25°C)

Parameter		Symbol	Rating	Unit
Drain-Source breakdown voltage		V _{DSS}	250	V
Gate-Source voltage		V _{GSS}	±30	V
Drain current	DC	I _D	±2	A
	Pulse	I _{DP}	±4	A
Avalanche energy capability		EAS *	10	mJ
Allowable power dissipation	T _C = 25°C	P _D	30	W
	T _a = 25°C		2	
Channel temperature		T _{ch}	150	°C
Storage temperature		T _{stg}	-55 to +150	°C

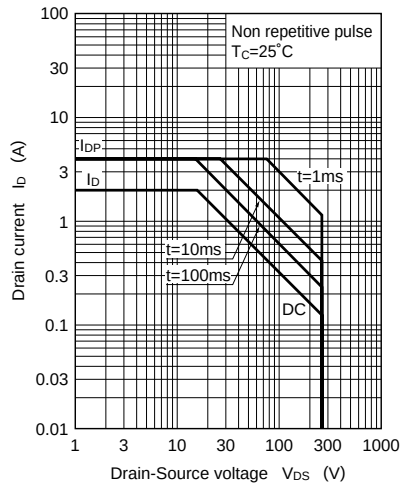
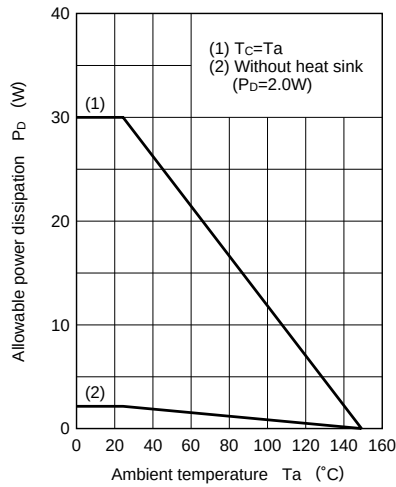
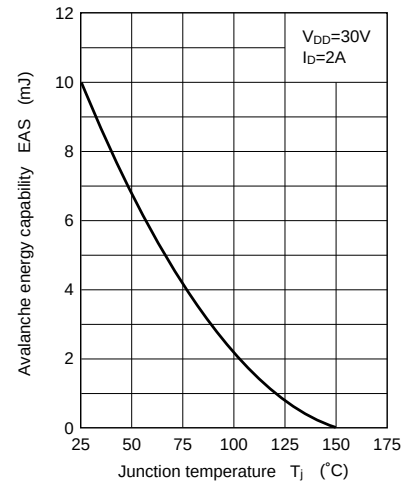
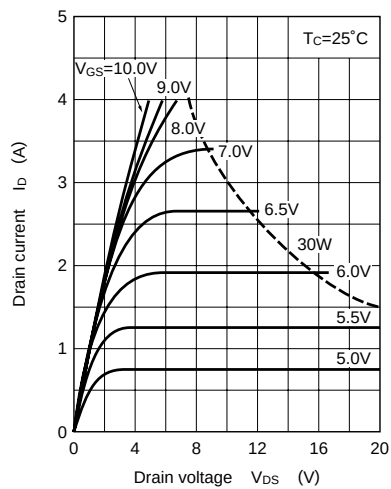
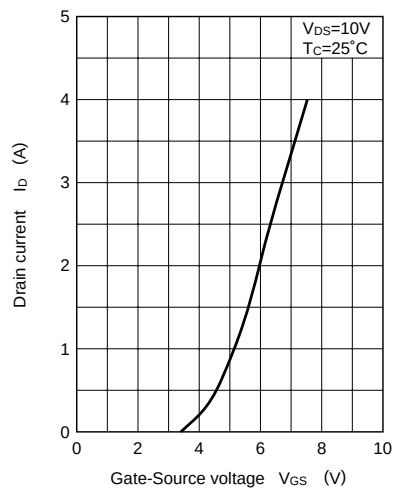
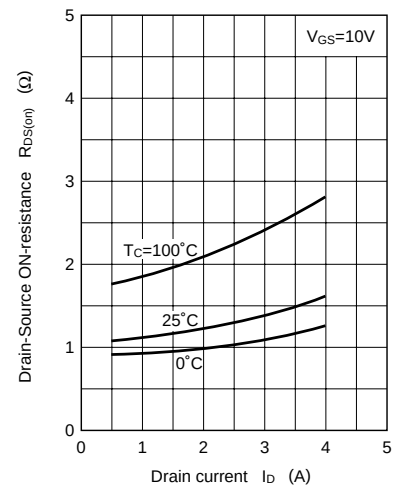
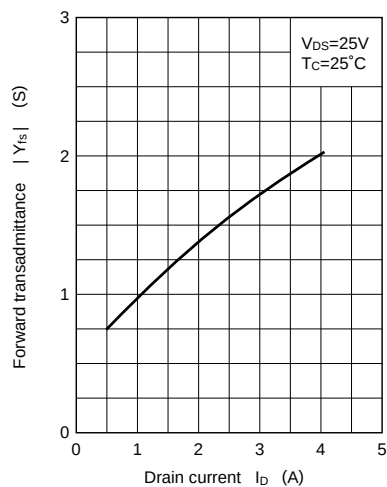
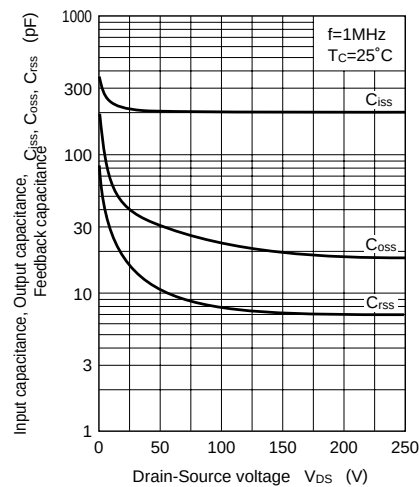
* L = 5mH, I_L = 2A, V_{DD} = 30V, 1 pulse

■ Electrical Characteristics (T_C = 25°C)

Parameter	Symbol	Condition	Min	Typ	Max	Unit
Drain-Source cut-off current	I _{DSS}	V _{DS} = 200V, V _{GS} = 0			100	μA
Gate-Source leakage current	I _{GSS}	V _{GS} = ±30V, V _{DS} = 0			±1	μA
Drain-Source breakdown voltage	V _{DSS}	I _D = 1mA, V _{GS} = 0	250			V
Gate threshold voltage	V _{th}	V _{DS} = 10V, I _D = 1mA	1		5	V
Drain-Source ON-resistance	R _{DS(on)}	V _{GS} = 10V, I _D = 1A		1.2	2	Ω
Forward transadmittance	Y _{fs}	V _{DS} = 25V, I _D = 1A	0.5	1		S
Diode forward voltage	V _{DSF}	I _{DR} = 2A, V _{GS} = 0			-1.6	V
Input capacitance	C _{iss}	V _{DS} = 10V, V _{GS} = 0, f = 1MHz		220		pF
Output capacitance	C _{oss}			60		pF
Feedback capacitance	C _{rss}			20		pF
Turn-on time (delay time)	t _{d(on)}	V _{DD} = 200V, I _D = 2A V _{GS} = 10V, R _L = 100Ω		10		ns
Rise time	t _r			20		ns
Fall time	t _f			45		ns
Turn-off time (delay time)	t _{d(off)}			90		ns
Channel-Case heat resistance	R _{th(ch-c)}				4.17	°C/W
Channel-Atmosphere heat resistance	R _{th(ch-a)}				62.5	°C/W



Area of safe operation (ASO)

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