Panasonic

2SK3124

Silicon N-Channel Power F-MOS FET

■ Features
● Avalanche energy capacity guaranteed
● High-speed switching
● No secondary breakdown
● High electrostatic breakdown voltage

■ Applications
● High-speed switching (switching power supply)
● For high-frequency power amplification

unit: mm

1: Gate
2: Drain
3: Source
U Type Package

■ Absolute Maximum Ratings ($T_C = 25°C$)

Parameter		Symbol	Ratings	Unit
Drain to Source breakdown voltage		V_{DSS}	400	V
Gate to Source voltage		V_{GSS}	±20	V
Drain current	DC	I_D	±0.5	A
	Pulse	I_{DP}	±1	A
Avalanche energy capacity		EAS^*	0.25	mJ
Allowable power dissipation	$T_C = 25°C$	P_D	10	W
	$Ta = 25°C$		1	
Channel temperature		T_{ch}	150	°C
Storage temperature		T_{stg}	−55 to +150	°C

* $L = 2mH$, $I_L = 0.5A$, 1 pulse

■ Electrical Characteristics ($T_C = 25°C$)

Parameter	Symbol	Conditions	min	typ	max	Unit
Drain to Source cut-off current	I_{DSS}	$V_{DS} = 320V$, $V_{GS} = 0$			10	μA
Gate to Source leakage current	I_{GSS}	$V_{GS} = ±20V$, $V_{DS} = 0$			±1	μA
Drain to Source breakdown voltage	V_{DSS}	$I_D = 1mA$, $V_{GS} = 0$	400			V
Gate threshold voltage	V_{th}	$V_{DS} = 10V$, $I_D = 1mA$	1		3	V
Drain to Source ON-resistance	$R_{DS(on)}$	$V_{GS} = 10V$, $I_D = 0.1A$		17	23	Ω
Forward transfer admittance	$|Y_{fs}|$	$V_{DS} = 10V$, $I_D = 0.1A$	100	160		mS
Diode forward voltage	V_{DSF}	$I_{DR} = 0.1A$, $V_{GS} = 0$			−1.5	V
Input capacitance (Common Source)	C_{iss}	$V_{DS} = 10V$, $V_{GS} = 0$, f = 1MHz		48		pF
Output capacitance (Common Source)	C_{oss}			10		pF
Reverse transfer capacitance (Common Source)	C_{rss}			5		pF
Turn-on time (delay time)	$t_{d(on)}$	$V_{DD} = 100V$, $I_D = 0.1A$ $V_{GS} = 10V$, $R_L = 1Ω$		65		ns
Rise time	t_r			35		ns
Fall time	t_f			40		ns
Turn-off time (delay time)	$t_{d(off)}$			70		ns
Thermal resistance between channel and case	$R_{th(ch-c)}$				12.5	°C/W
Thermal resistance between channel and atmosphere	$R_{th(ch-a)}$				125	°C/W