2SK3494

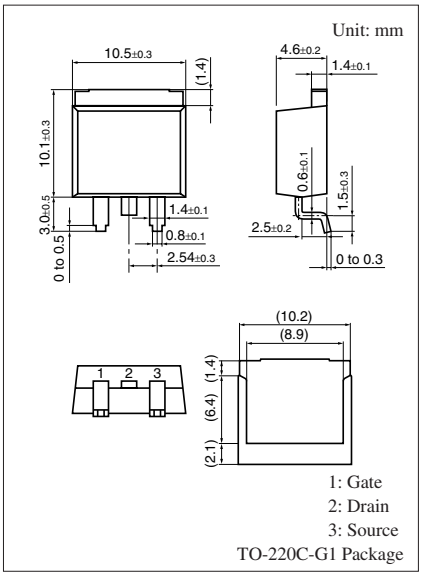
N-channel enhancement mode MOSFET

■ Features

- Low on-resistance, low Q_g
- High avalanche resistance

■ Applications

- For PDP
- For high-speed switching



Marking Symbol: K3494

■ Absolute Maximum Ratings $T_C = 25°C$

Parameter	Symbol	Rating	Unit
Drain-source surrender voltage	V_{DSS}	250	V
Gate-source surrender voltage	V_{GSS}	±30	V
Drain current	I_D	20	A
Peak drain current	I_{DP}	80	A
Avalanche energy capability *	EAS	657	mJ
Power dissipation	P_D	50	W
$T_a = 25°C$		1.4	
Channel temperature	T_{ch}	150	°C
Storage temperature	T_{stg}	−55 to +150	°C

Note) *: L = 2.79 mH, I_L = 20 A, V_{DD} = 50 V, 1 pulse, $T_a = 25°C$

■ Electrical Characteristics $T_C = 25°C \pm 3°C$

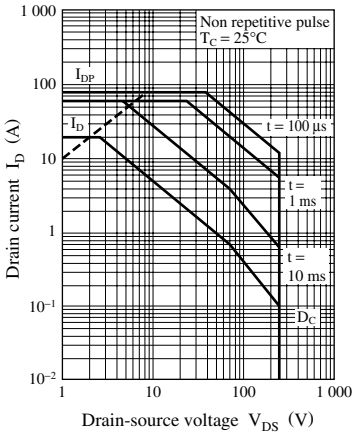
Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Drain-source surrender voltage	V_{DSS}	I_D = 1 mA, V_{GS} = 0	250			V
Gate threshold voltage	V_{th}	V_{DS} = 10 V, I_D = 1 mA	2.0		4.0	V
Drain-source cutoff current	I_{DSS}	V_{DS} = 200 V, V_{GS} = 0			10	μA
Gate-source cutoff current	I_{GSS}	V_{GS} = ±30 V, V_{DS} = 0			±1	μA
Drain-source ON resistance	$R_{DS(on)}$	V_{GS} = 10 V, I_D = 10 A		82	105	mΩ
Forward transfer admittance	$\|Y_{fs}\|$	V_{DS} = 10 V, I_D = 10 A	7	14		S
Short-circuit forward transfer capacitance (Common-source)	C_{iss}	V_{DS} = 25 V, V_{GS} = 0, f = 1 MHz		2450		pF
Short-circuit output capacitance (Common-source)	C_{oss}			356		pF
Reverse transfer capacitance (Common-source)	C_{rss}			40		pF
Turn-on delay time	$t_{d(on)}$	$V_{DD} \approx$ 100 V, I_D = 10 A		36		ns
Rise time	T_r	R_L = 10 Ω, V_{GS} = 10 V		20		ns
Turn-off delay time	$t_{d(off)}$			184		ns
Fall time	t_f			29		ns

■ Electrical Characteristics (continued) $T_C = 25°C \pm 3°C$

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Diode foward voltage	V_{DSF}	I_{DR} = 20 A, V_{GS} = 0			−1.5	V
Reverse recovery time	t_{rr}	L = 230 µH, V_{DD} = 100 V		142		ns
Reverse recovery charge	Q_{rr}	I_{DR} = 10 A, di/dt = 100 A/µs		668		nC
Gate charge load	Q_g	V_{DD} = 100 V, I_D = 10 A		41		nC
Gate-source charge	Q_{gs}	V_{GS} = 10 V		8.4		nC
Gate-drain charge	Q_{gd}			14		nC
Thermal resistance (ch-c)	$R_{th(ch-c)}$				2.5	°C/W
Thermal resistance (ch-a)	$R_{th(ch-a)}$				89.2	°C/W

Note) Measuring methods are based on JAPANESE INDUSTRIAL STANDARD JIS C 7030 measuring methods for transistors.

Safe operation area



P_C — T_a