

2SK2032

Silicon N-Channel Power F-MOS FET

■ Features

- Avalanche energy capacity guaranteed: EAS > 200mJ
- $V_{GS} = \pm 30V$ guaranteed
- High-speed switching: $t_f = 90ns$
- No secondary breakdown

■ Applications

- Contactless relay
- Diving circuit for a solenoid
- Driving circuit for a motor
- Control equipment
- Switching power supply

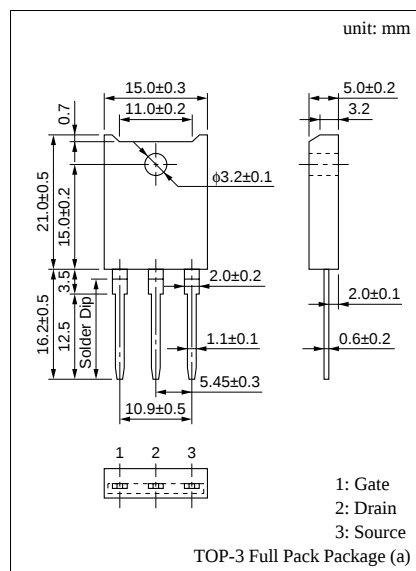
■ Absolute Maximum Ratings ($T_C = 25^\circ C$)

Parameter	Symbol	Ratings	Unit
Drain to Source breakdown voltage	V_{DSS}	450	V
Gate to Source voltage	V_{GSS}	± 30	V
Drain current	DC	I_D	A
	Pulse	I_{DP}	A
Avalanche energy capacity	EAS ^{*1}	200	mJ
Allowable power dissipation	$T_C = 25^\circ C$	P_D ^{*2}	W
	$T_a = 25^\circ C$	P_D ^{*3}	W
Channel temperature	T_{ch}	150	$^\circ C$
Storage temperature	T_{stg}	-55 to +150	$^\circ C$

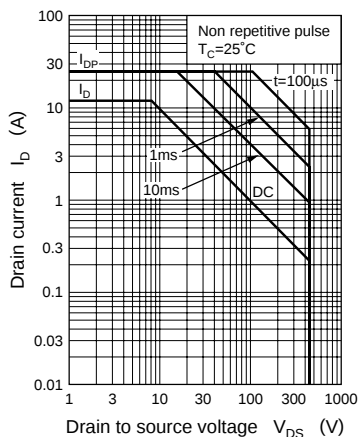
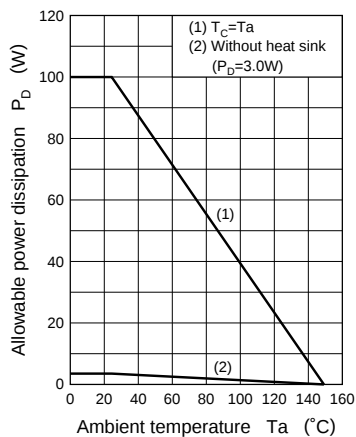
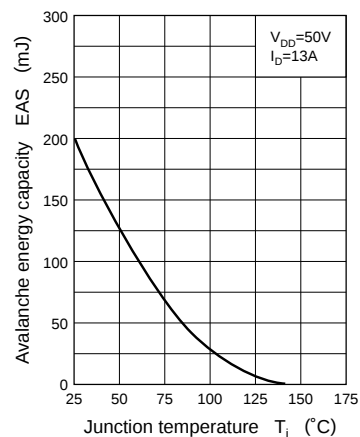
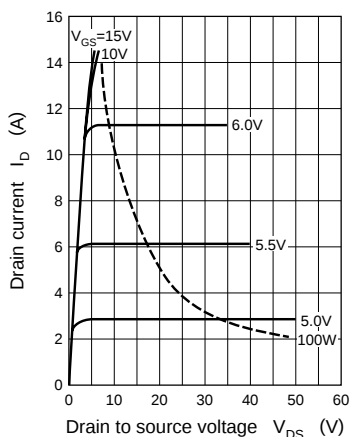
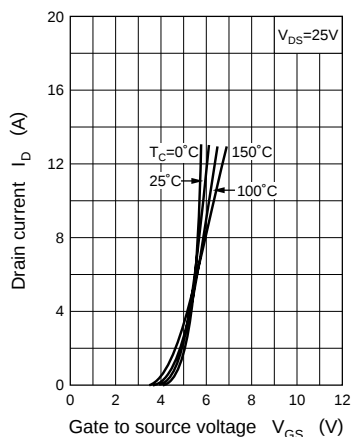
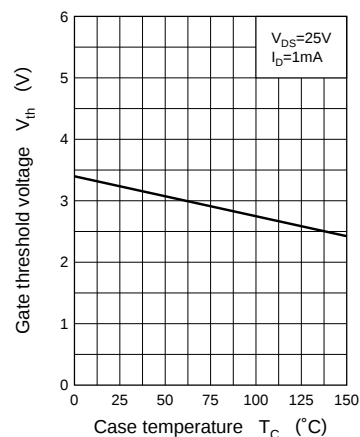
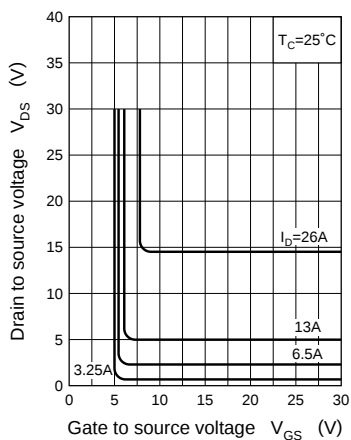
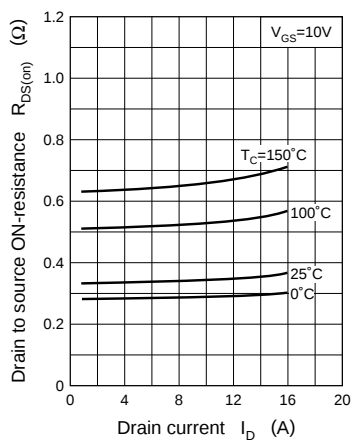
^{*1} L = 5mH, $I_L = 9A$, $V_{DD} = 50V$, 1 pulse ^{*2} $T_C = 25^\circ C$ ^{*3} $T_a = 25^\circ C$ (Without heat sink)

■ Electrical Characteristics ($T_C = 25^\circ C$)

Parameter	Symbol	Conditions	min	typ	max	Unit
Drain to Source cut-off current	I_{DSS}	$V_{DS} = 360V$, $V_{GS} = 0$			0.1	mA
Gate to Source leakage current	I_{GSS}	$V_{GS} = \pm 30V$, $V_{DS} = 0$			± 1	μA
Drain to Source breakdown voltage	V_{DSS}	$I_D = 1mA$, $V_{GS} = 0$	450			V
Gate threshold voltage	V_{th}	$V_{DS} = 25V$, $I_D = 1mA$	2		5	V
Drain to Source ON-resistance	$R_{DS(on)}$	$V_{GS} = 10V$, $I_D = 7A$		0.34	0.45	Ω
Forward transfer admittance	$ Y_{fs} $	$V_{DS} = 25V$, $I_D = 7A$	5	8		S
Diode forward voltage	V_{DSF}	$I_{DR} = 13A$, $V_{GS} = 0$			-2	V
Input capacitance (Common Source)	C_{iss}	$V_{DS} = 20V$, $V_{GS} = 0$, $f = 1MHz$		1700		pF
Output capacitance (Common Source)	C_{oss}			300		pF
Reverse transfer capacitance (Common Source)	C_{rss}			120		pF
Turn-on time (delay time)	$t_{d(on)}$	$V_{GS} = 10V$, $I_D = 7A$ $V_{DD} = 150V$, $R_L = 21.4\Omega$		110		ns
Fall time	t_f			90		ns
Turn-off time (delay time)	$t_{d(off)}$			220		ns
Thermal resistance between channel and case	$R_{th(ch-c)}$				1.25	$^\circ C/W$



Area of safe operation (ASO)

 $P_D - T_a$ EAS — T_j  $I_D - V_{DS}$  $I_D - V_{GS}$  $V_{th} - T_C$  $V_{DS} - V_{GS}$  $R_{DS(on)} - I_D$  $|Y_{fs}| - I_D$ 