

# 2SK1161, 2SK1162

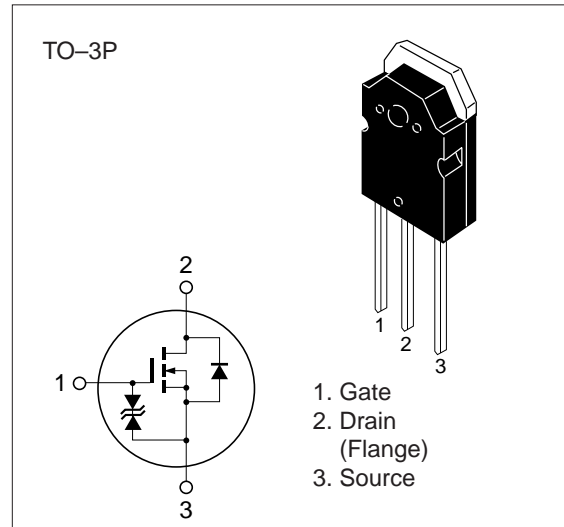
## Silicon N-Channel MOS FET

### Application

High speed power switching

### Features

- Low on-resistance
- High speed switching
- Low drive current
- No secondary breakdown
- Suitable for switching regulator and DC-DC converter



**Table 1 Absolute Maximum Ratings** ( $T_a = 25^\circ\text{C}$ )

Item		Symbol	Ratings	Unit
Drain to source voltage	2SK1161	$V_{DSS}$	450	V
	2SK1162		500	
Gate to source voltage		$V_{GSS}$	$\pm 30$	V
Drain current		$I_D$	10	A
Drain peak current		$I_{D(\text{pulse})}^*$	30	A
Body to drain diode reverse drain current		$I_{DR}$	10	A
Channel dissipation		$P_{ch}^{**}$	100	W
Channel temperature		$T_{ch}$	150	$^\circ\text{C}$
Storage temperature		$T_{stg}$	-55 to +150	$^\circ\text{C}$

\*  $PW \leq 10 \mu\text{s}$ , duty cycle  $\leq 1\%$

\*\* Value at  $T_C = 25^\circ\text{C}$

**Table 2 Electrical Characteristics** ( $T_a = 25^\circ\text{C}$ )

Item		Symbol	Min	Typ	Max	Unit	Test conditions
Drain to source breakdown voltage	2SK1161	$V_{(BR)DSS}$	450	—	—	V	$I_D = 10 \text{ mA}, V_{GS} = 0$
	2SK1162		500				
Gate to source breakdown voltage		$V_{(BR)GSS}$	$\pm 30$	—	—	V	$I_G = \pm 100 \mu\text{A}, V_{DS} = 0$
Gate to source leak current		$I_{GSS}$	—	—	$\pm 10$	$\mu\text{A}$	$V_{GS} = \pm 25 \text{ V}, V_{DS} = 0$
Zero gate voltage drain current	2SK1161	$I_{DSS}$	—	—	250	$\mu\text{A}$	$V_{DS} = 360 \text{ V}, V_{GS} = 0$
	2SK1162						$V_{DS} = 400 \text{ V}, V_{GS} = 0$
Gate to source cutoff voltage		$V_{GS(off)}$	2.0	—	3.0	V	$I_D = 1 \text{ mA}, V_{DS} = 10 \text{ V}$
Static Drain to source on state resistance	2SK1161	$R_{DS(on)}$	—	0.6	0.8	$\Omega$	$I_D = 5 \text{ A}, V_{GS} = 10 \text{ V}^*$
	2SK1162		—	0.7	0.9		
Forward transfer admittance		$ y_{fs} $	4.0	7.0	—	S	$I_D = 5 \text{ A}, V_{DS} = 10 \text{ V}^*$
Input capacitance		$C_{iss}$	—	1050	—	pF	$V_{DS} = 10 \text{ V}, V_{GS} = 0,$
Output capacitance		$C_{oss}$	—	280	—	pF	$f = 1 \text{ MHz}$
Reverse transfer capacitance		$C_{rss}$	—	40	—	pF	
Turn-on delay time		$t_{d(on)}$	—	15	—	ns	$I_D = 5 \text{ A}, V_{GS} = 10 \text{ V},$
Rise time		$t_r$	—	60	—	ns	$R_L = 6 \Omega$
Turn-off delay time		$t_{d(off)}$	—	90	—	ns	
Fall time		$t_f$	—	45	—	ns	
Body to drain diode forward voltage		$V_{DF}$	—	1.0	—	V	$I_F = 10 \text{ A}, V_{GS} = 0$
Body to drain diode reverse recovery time		$t_{rr}$	—	350	—	ns	$I_F = 10 \text{ A}, V_{GS} = 0,$ $di_F/dt = 100 \text{ A}/\mu\text{s}$

\* Pulse Test

See characteristic curves of 2SK1157, 2SK1158.

