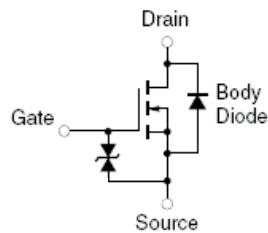
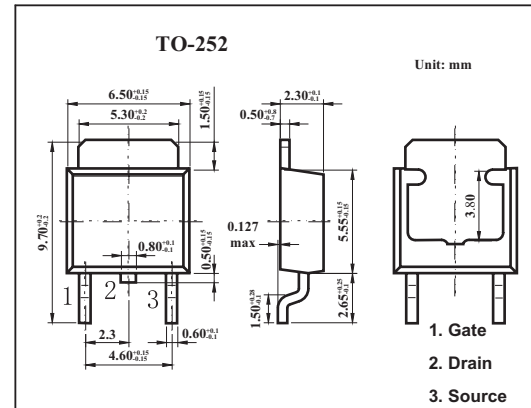


MOS Field Effect Transistor

2SK3640

■ Features

- Low on-state resistance
 $R_{DS(on)1} = 21 \text{ m}\Omega \text{ MAX. (} V_{GS} = 10 \text{ V, } I_D = 9 \text{ A)}$
 $R_{DS(on)2} = 40 \text{ m}\Omega \text{ MAX. (} V_{GS} = 4.5 \text{ V, } I_D = 9 \text{ A)}$
- Low Ciss: Ciss = 570 pF TYP.
- Built-in gate protection diode

■ Absolute Maximum Ratings $T_a = 25^\circ\text{C}$

Parameter	Symbol	Rating	Unit
Drain to Source Voltage	V_{DS}	30	V
Gate to Source Voltage	V_{GS}	± 16	V
Drain Current(DC)	$I_{D(DC)}$	± 19	A
Drain Current(pulse) *1	$I_{D(pulse)}$	± 76	A
Total Power Dissipation ($T_c = 25^\circ\text{C}$)	P_T	20	W
Total Power Dissipation	P_T	1	W
Channel Temperature	T_{ch}	150	$^\circ\text{C}$
Storage temperature	T_{stg}	-55 to +150	$^\circ\text{C}$
Single Avalanche Current *2	I_{AS}	10	A
Single Avalanche Energy *2	E_{AS}	10	mJ

*1 $PW \leq 10 \mu\text{s}$, Duty Cycle $\leq 1\%$

*2. Starting $T_{ch} = 25^\circ\text{C}$, $V_{DD} = 15 \text{ V}$, $R_G = 25 \Omega$, $V_{GS} = 20 \rightarrow 0 \text{ V}$, $L = 100 \mu\text{H}$

2SK3640

■ Electrical Characteristics Ta = 25°C

Parameter	Symbol	Testconditons	Min	Typ	Max	Unit
Drain Cut-off Current	I_{DSS}	$V_{DS} = 30\text{ V}, V_{GS} = 0\text{ V}$			10	$\mu\text{ A}$
Gate Leakage Current	I_{GSS}	$V_{GS} = \pm 16\text{ V}, V_{DS} = 0\text{ V}$			± 10	$\mu\text{ A}$
Gate Cut-off Voltage	$V_{GS(off)}$	$V_{DS} = 10\text{ V}, I_D = 1\text{ mA}$	1.5		2.5	V
Forward Transfer Admittance	$ Y_{fs} $	$V_{DS} = 10\text{ V}, I_D = 9\text{ A}$	3.7	7.4		S
Drain to Source On-state Resistance	$R_{DS(on)1}$	$V_{GS} = 10\text{ V}, I_D = 9\text{ A}$		15	21	$\text{m}\Omega$
	$R_{DS(on)2}$	$V_{GS} = 4.5\text{ V}, I_D = 9\text{ A}$		24	40	$\text{m}\Omega$
Input Capacitance	C_{iss}	$V_{DS} = 10\text{ V}$		570		pF
Output Capacitance	C_{oss}	$V_{GS} = 0\text{ V}$		160		pF
Feedback Capacitance	C_{rss}	$f = 1\text{ MHz}$		100		pF
Turn-on Delay Time	$t_{d(on)}$	$V_{DD} = 15\text{ V}, I_D = 9\text{ A}$		7.7		ns
Rise Time	t_r	$V_{GS} = 10\text{ V}$		4.7		ns
Turn-off Delay Time	$t_{d(off)}$	$R_G = 10\Omega$		24		ns
Fall Time	t_f			7		ns
Total Gate Charge	Q_g	$V_{DD} = 24\text{ V}$		14		nC
Gate-Source Charge	Q_{gs}	$V_{GS} = 10\text{ V}$		2.4		nC
Gate-Drain Charge	Q_{gd}	$I_D = 19\text{ A}$		4.3		nC
Diode Forward Voltage	$V_{F(S-D)}$	$I_F = 19\text{ A}, V_{GS} = 0\text{ V}$		0.95		V
Reverse Recovery Time	t_{rr}	$I_F = 19\text{ A}, V_{GS} = 0\text{ V}$		21		ns
Reverse Recovery Charge	Q_{rr}	$di/dt = 100\text{ A}/\mu\text{ s}$		12		nC