

MOS Field Effect Transistor

2SK3643

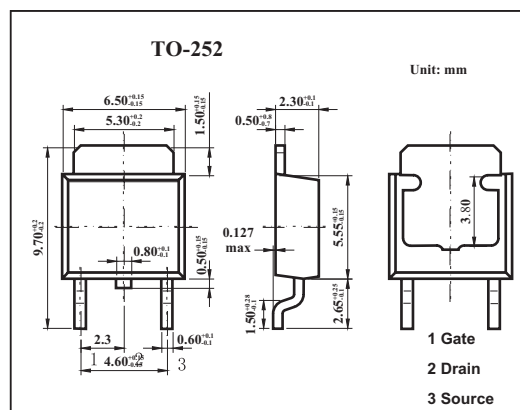
■ Features

- Low on-state resistance

$R_{DS(on)1} = 6 \text{ m}\Omega \text{ MAX. (} V_{GS} = 10 \text{ V, } I_D = 32 \text{ A)}$

$R_{DS(on)2} = 9 \text{ m}\Omega \text{ MAX. (} V_{GS} = 4.5 \text{ V, } I_D = 32 \text{ A)}$

- Low C_{iss} : $C_{iss} = 2400 \text{ pF TYP.}$



■ 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}	± 20	V
Drain current	I_D	± 64	A
	I_{dp}^*	± 256	A
Power dissipation	P_D	40	W
		1.0	
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 $\leq 1\%$

■ Electrical Characteristics $T_a = 25^\circ\text{C}$

Parameter	Symbol	Test conditions	Min	Typ	Max	Unit
Drain cut-off current	I_{DSS}	$V_{DS}=30\text{V}, V_{GS}=0$			10	μA
Gate leakage current	I_{GSS}	$V_{GS} = \pm 20\text{V}, V_{DS}=0$			± 100	nA
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} $	$V_{DS}=10\text{V}, I_D=32\text{A}$	19	39		S
Drain to source on-state resistance	$R_{DS(on)1}$	$V_{GS}=10\text{V}, I_D=32\text{A}$		4.7	6	$\text{m}\Omega$
	$R_{DS(on)2}$	$V_{GS}=4.5\text{V}, I_D=32\text{A}$		6.3	9	$\text{m}\Omega$
Input capacitance	C_{iss}	$V_{DS}=10\text{V}, V_{GS}=0, f=1\text{MHz}$		2400		pF
Output capacitance	C_{oss}			920		pF
Reverse transfer capacitance	C_{rss}			320		pF
Turn-on delay time	t_{on}	$I_D=32\text{A}, V_{GS(on)}=10\text{V}, R_G=10\Omega, V_{DD}=15\text{V}$		14		ns
Rise time	t_r			14		ns
Turn-off delay time	t_{off}			75		ns
Fall time	t_f			23		ns
Total Gate Charge	Q_G	$V_{DD} = 24\text{V}$		48		nC
Gate to Source Charge	Q_{GS}	$V_{GS} = 10 \text{ V}$		8.4		nC
Gate to Drain Charge	Q_{GD}	$I_D = 64\text{A}$		12		nC