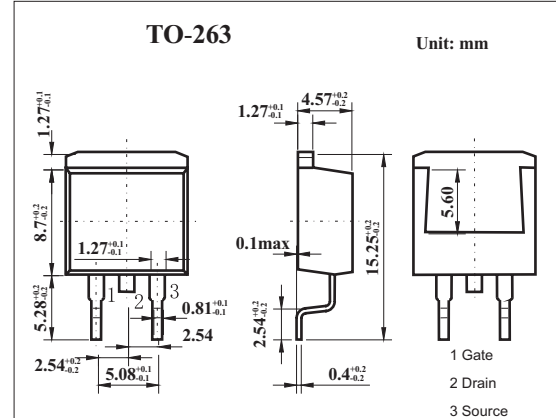


## MOS Field Effect Transistor 2SK3431

### ■ Features

- Super low on-state resistance:  
 $R_{DS(on)1} = 5.6m\ \Omega$  MAX. ( $V_{GS} = 10\ V$ ,  $I_D = 42\ A$ )  
 $R_{DS(on)2} = 8.9\ m\ \Omega$  MAX. ( $V_{GS} = 4\ V$ ,  $I_D = 42\ A$ )
- Low  $C_{iss}$ :  $C_{iss} = 6100\ pF$  TYP.
- Built-in gate protection diode



### ■ Absolute Maximum Ratings $T_a = 25^\circ C$

Parameter	Symbol	Rating	Unit	
Drain to source voltage	$V_{DS}$	40	V	
Gate to source voltage	$V_{GS}$	$\pm 20$	V	
Drain current	$I_D$	$\pm 83$	A	
	$I_{DP}^*$	$\pm 332$	A	
Power dissipation	$P_D$	$T_C=25^\circ C$	100	W
		$T_A=25^\circ C$	1.5	
Channel temperature	$T_{ch}$	150	$^\circ C$	
Storage temperature	$T_{stg}$	-55 to +150	$^\circ C$	

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

### ■ Electrical Characteristics $T_a = 25^\circ C$

Parameter	Symbol	Test conditions	Min	Typ	Max	Unit
Drain cut-off current	$I_{DSS}$	$V_{DS}=40V, V_{GS}=0$			10	$\mu A$
Gate leakage current	$I_{GSS}$	$V_{GS}=\pm 20V, V_{DS}=0$			$\pm 10$	$\mu A$
Gate cutoff voltage	$V_{GS(off)}$	$V_{DS}=10V, I_D=1mA$	1.5	2.0	2.5	V
Forward transfer admittance	$ Y_{fs} $	$V_{DS}=10V, I_D=42A$	30	60		S
Drain to source on-state resistance	$R_{DS(on)1}$	$V_{GS}=10V, I_D=42A$		4.5	5.6	$m\ \Omega$
	$R_{DS(on)2}$	$V_{GS}=4V, I_D=42A$		6.2	8.9	$m\ \Omega$
Input capacitance	$C_{iss}$	$V_{DS}=10V, V_{GS}=0, f=1MHz$		6100		pF
Output capacitance	$C_{oss}$			1400		pF
Reverse transfer capacitance	$C_{rss}$			700		pF
Turn-on delay time	$t_{on}$				120	
Rise time	$t_r$	$I_D=42A, V_{GS(on)}=10V, R_G=10\ \Omega, V_{DD}=20V$		1800		ns
Turn-off delay time	$t_{off}$			350		ns
Fall time	$t_f$			440		ns
Total Gate Charge	$Q_G$				110	
Gate to Source Charge	$Q_{GS}$	$I_D=83A, V_{DD}=32V, V_{GS}=10V$		18		nC
Gate to Drain Charge	$Q_{GD}$			31		nC