

2SK2313

60V, 6.5mΩ typ., 110A N-Channel MOSFET

General Description

This Power MOSFET is produced using Cmos's advanced planar stripe DMOS technology. These devices are well suited for low voltage applications such as automotive, DC/DC converters, and high efficiency switching for power management in portable and battery operated products.

Features

- Low On-Resistance
- 100% avalanche tested
- RoHS Compliant

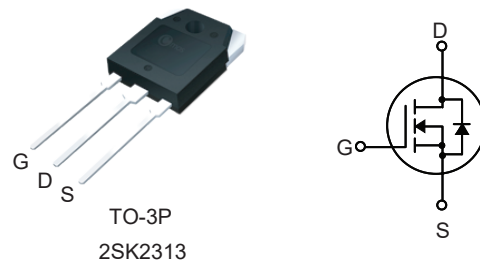
Product Summary

BVDSS	R _{DS(on)} max.	ID
60V	7.5mΩ	110A

Applications

- Switch Mode Power Supply
- Uninterruptible Power Supply
- Power Factor Correction

TO-3P Pin Configuration



Absolute Maximum Ratings

Symbol	Parameter	Rating	Units
V _{DS}	Drain-Source Voltage	60	V
V _{GS}	Gate-Source Voltage	±20	V
I _D @T _C =25°C	Continuous Drain Current	110	A
I _D @T _C =100°C	Continuous Drain Current	77	A
I _{DM}	Pulsed Drain Current	440	A
EAS	Single Pulse Avalanche Energy ¹	1953	mJ
P _D @T _C =25°C	Total Power Dissipation	200	W
T _{STG}	Storage Temperature Range	-55 to 150	°C
T _J	Operating Junction Temperature Range	150	°C

Thermal Data

Symbol	Parameter	Typ.	Max.	Unit
R _{θJA}	Thermal Resistance Junction-ambient	---	40	°C/W
R _{θJC}	Thermal Resistance Junction-case	---	0.63	°C/W

Electrical Characteristics ($T_J=25^{\circ}\text{C}$, unless otherwise noted)

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
BV_{DSS}	Drain-Source Breakdown Voltage	$V_{GS}=0V$, $I_D=250\mu A$	60	---	---	V
$R_{DS(ON)}$	Static Drain-Source On-Resistance	$V_{GS}=10V$, $I_D=55A$	---	6.5	7.5	mΩ
$V_{GS(th)}$	Gate Threshold Voltage	$V_{GS}=V_{DS}$, $I_D=250\mu A$	1	---	3	V
I_{DSS}	Drain-Source Leakage Current	$V_{DS}=60V$, $V_{GS}=0V$	---	---	1	μA
		$V_{DS}=48V$, $V_{GS}=0V$, $TC=150^{\circ}\text{C}$	---	---	10	
I_{GSS}	Gate-Source Leakage Current	$V_{GS}=\pm 20V$, $V_{DS}=0V$	---	---	±100	nA
g_{fs}	Forward Transconductance	$V_{DS}=10V$, $I_D=28A$	---	55	---	S
Q_g	Total Gate Charge	$I_D=42A$	---	115	---	nC
Q_{gs}	Gate-Source Charge	$V_{DS}=48V$	---	13	---	
Q_{gd}	Gate-Drain Charge	$V_{GS}=10V$	---	55	---	
$T_{d(on)}$	Turn-On Delay Time	$V_{DS}=30V$ $I_D=42A$ $R_G=25\Omega$	---	52	---	ns
T_r	Rise Time		---	142	---	
$T_{d(off)}$	Turn-Off Delay Time		---	355	---	
T_f	Fall Time		---	230	---	
C_{iss}	Input Capacitance	$V_{DS}=25V$, $V_{GS}=0V$, $f=1\text{MHz}$	---	2900	---	pF
C_{oss}	Output Capacitance		---	1000	---	
C_{rss}	Reverse Transfer Capacitance		---	500	---	

Diode Characteristics

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
I_S	Continuous Source Current	$V_G=V_D=0V$, Force Current	---	---	110	A
V_{SD}	Diode Forward Voltage	$V_{GS}=0V$, $I_S=30A$, $T_J=25^{\circ}\text{C}$	---	0.85	1.3	V

Note :

1 : The EAS data shows Max. rating . The test condition is $V_{DD}=50V$, $V_{GS}=10V$, $L=1\text{mH}$, $I_{AS}=62.5A$.

This product has been designed and qualified for the consumer market.

Cmos assumes no liability for customers' product design or applications.

Cmos reserves the right to improve product design ,functions and reliability without notice.

Typical Characteristics

