

RoHS Compliant Product
A suffix of "-C" specifies halogen free

DESCRIPTION

The high voltage MOSFET uses an advanced termination scheme to provide enhanced voltage-blocking capability without degrading performance over time. In addition, this advanced MOSFET is designed to withstand high energy in avalanche and commutation modes. The new energy efficient design also offers a drain-to-source diode with a fast recovery time.

Designed for high voltage, high speed switching applications in power suppliers, converters and PWM motor control, these devices are particularly well suited for bridge circuits whose diode speed and commutating safe operating areas are critical and offering additional safety margin against unexpected voltage transients.

FEATURES

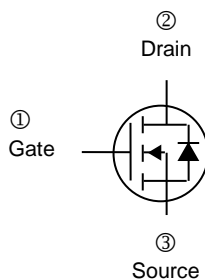
- Robust high voltage termination
- Avalanche energy specified
- Source-to-drain diode recovery time comparable to a discrete fast recovery diode
- Diode is characterized for the use in bridge circuits
- I_{SS} and V_{DS} are specified at the elevated temperature

PACKAGE INFORMATION

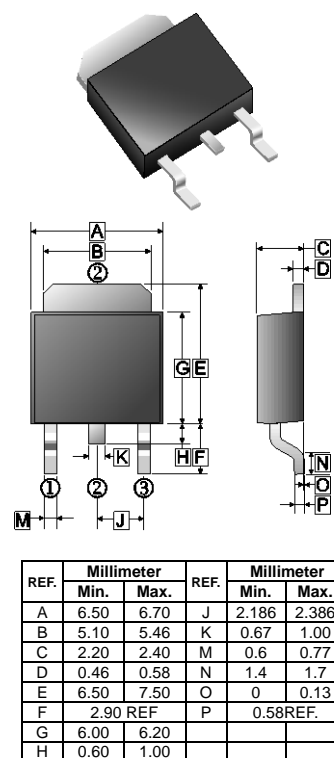
Package	MPQ	Leader Size
TO-252	2.5K	13 inch

ORDER INFORMATION

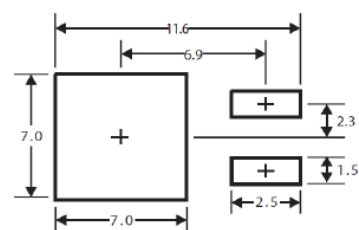
Part Number	Type
SSD02N60J-C	Lead (Pb)-free and Halogen-free



TO-252



Mounting Pad Layout



*Dimensions in millimeters

ABSOLUTE MAXIMUM RATINGS ($T_A=25^\circ\text{C}$ unless otherwise noted)

Parameter	Symbol	Rating	Unit
Drain-Source Voltage	V_{DS}	600	V
Gate-Source Voltage	V_{GS}	± 20	V
Continuous Drain Current	I_D	2	A
Pulsed Drain Current	I_{DM}	8	A
Power Dissipation	P_D	1.25	W
Junction and Storage Temperature Range	T_J, T_{STG}	150, -50~150	$^\circ\text{C}$
Thermal Resistance Rating			
Thermal Resistance from Junction-Ambient	$R_{\theta JA}$	100	$^\circ\text{C/W}$

ELECTRICAL CHARACTERISTICS ($T_A=25^\circ\text{C}$ unless otherwise noted)

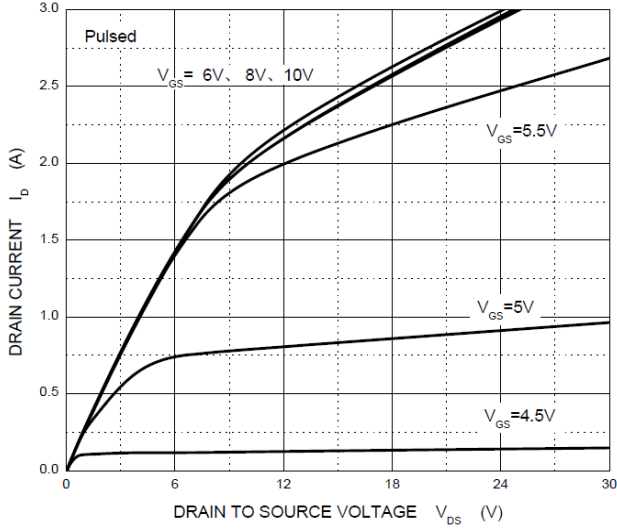
Parameter	Symbol	Min.	Typ.	Max.	Unit	Test Condition
Drain-Source Breakdown Voltage	BV_{DSS}	600	-	-	V	$V_{GS}=0, I_D=250\mu\text{A}$
Gate-Threshold Voltage ¹	$V_{GS(th)}$	2	-	4	V	$V_{DS}=V_{GS}, I_D=250\mu\text{A}$
Forward Transconductance ¹	g_{fs}	1	-	-	S	$V_{DS}=50\text{V}, I_D=1\text{A}$
Gate-Source Leakage Current ¹	I_{GSS}	-	-	± 100	nA	$V_{DS}=0\text{V}, V_{GS}=\pm 20\text{V}$
Drain-Source Leakage Current	I_{DSS}	-	-	25	μA	$V_{DS}=600\text{V}, V_{GS}=0$
Static Drain-Source On-Resistance ¹	$R_{DS(ON)}$	-	-	4.4	Ω	$V_{GS}=10\text{V}, I_D=1\text{A}$
Gate Resistance	R_g	-	2.3	-	Ω	$f=1\text{MHz}$
Turn-on Delay Time	$T_{d(on)}$	-	12	-	nS	$V_{DD}=300\text{V}$ $V_{GS}=10\text{V}$ $R_G=18\Omega$ $I_D=2\text{A}$
Rise Time	T_r	-	21	-		
Turn-off Delay Time	$T_{d(off)}$	-	30	-		
Fall Time	T_f	-	24	-		
Input Capacitance	C_{iss}	-	435	-	pF	$V_{DS}=25\text{V}$ $V_{GS}=0$ $f=1\text{MHz}$
Output Capacitance	C_{oss}	-	56	-		
Reverse Transfer Capacitance	C_{rss}	-	9.2	-		
Diode Forward Voltage ¹	V_{SD}	-	-	1.6	V	$I_S=2\text{A}, V_{GS}=0$

Note:

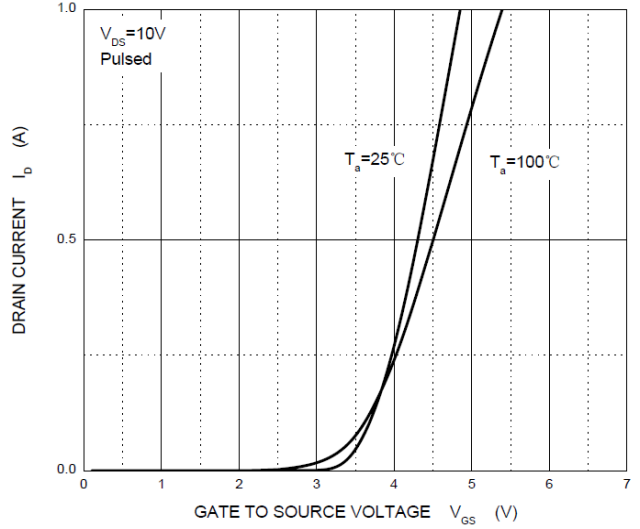
1. Pulse Test: Pulse width $\leq 300\mu\text{s}$, duty cycle $\leq 2\%$.

CHARACTERISTIC CURVES

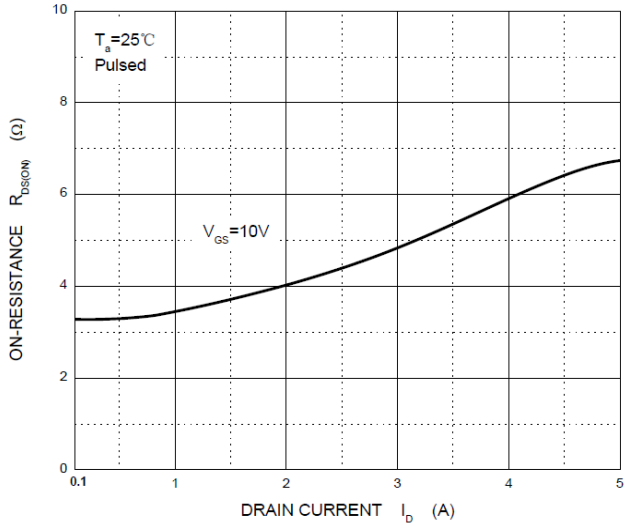
Output Characteristics



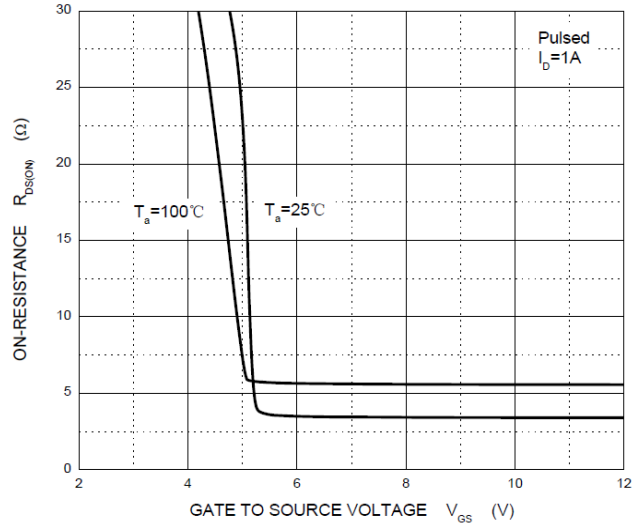
Transfer Characteristics



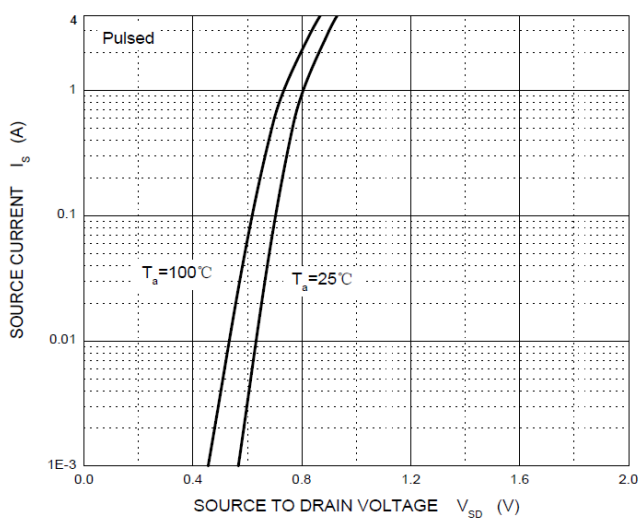
$R_{DS(ON)} - I_D$



$R_{DS(ON)} - V_{GS}$



$I_S - V_{SD}$



Threshold Voltage

