

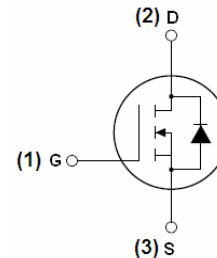
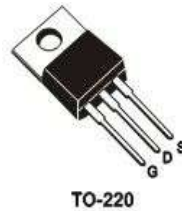


Features

- Low On-Resistance
- Fast Switching Speed
- 100% avalanche tested
- Lead Free and Green Devices
Available (RoHS Compliant)

Application

- DC/DC Converters
- On board power for server
- Synchronous rectification



Product Summary

V_{DS}	40	V
$R_{DS(on),TYP} @ V_{GS}=10V$	4.0	m Ω
I_D	100	A

Absolute Maximum Ratings

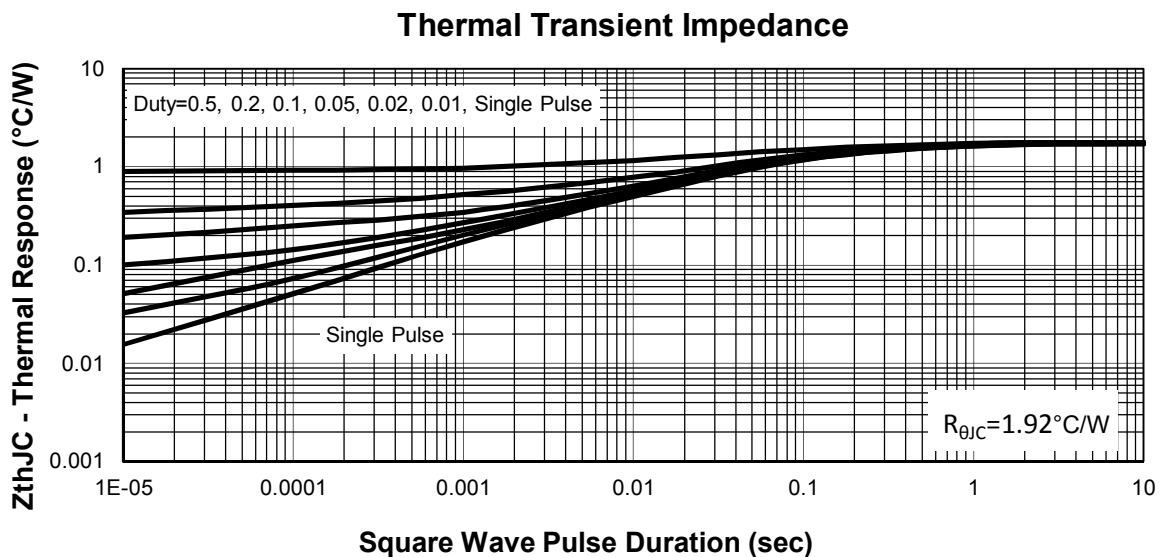
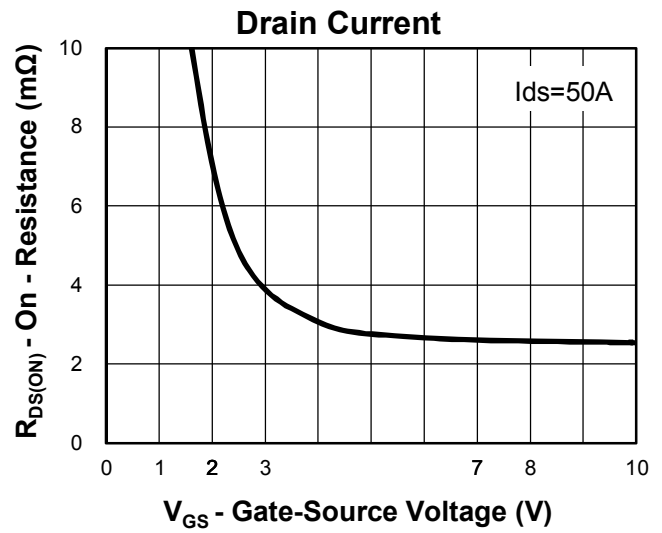
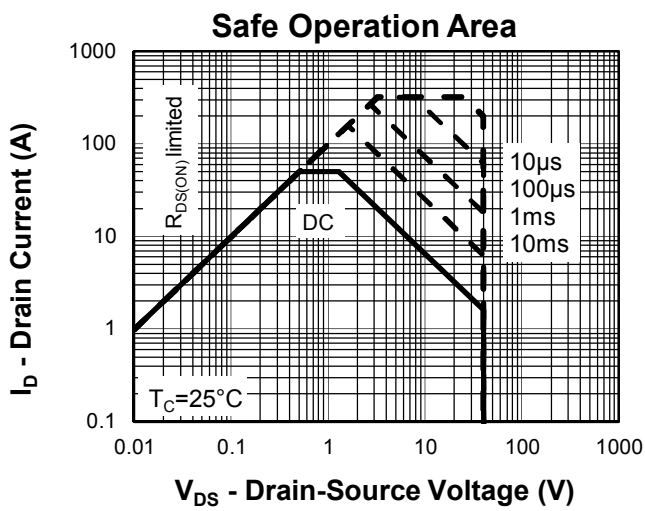
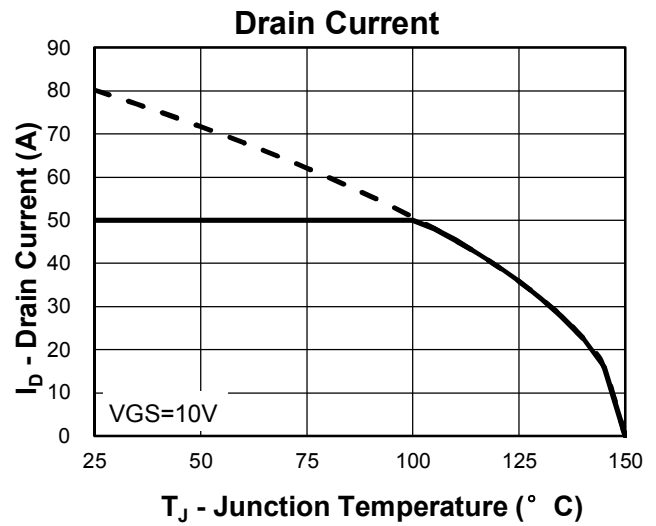
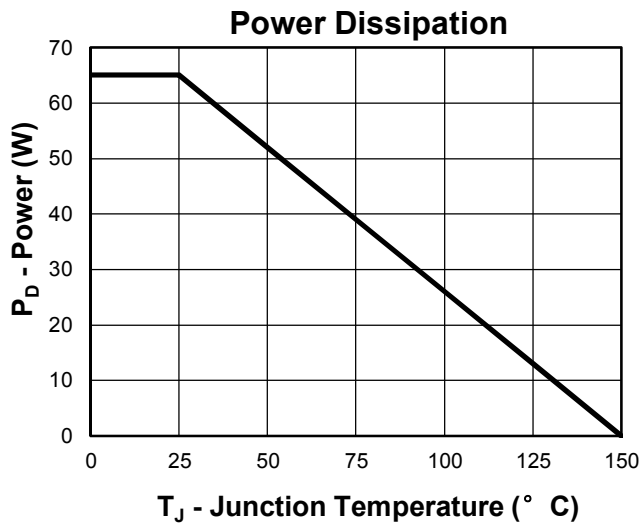
Symbol	Parameter	Rating	Unit
Common Ratings ($T_C=25^\circ\text{C}$ Unless Otherwise Noted)			
V_{DSS}	Drain-Source Voltage	40	V
V_{GSS}	Gate-Source Voltage	± 20	
T_J	Maximum Junction Temperature	150	$^\circ\text{C}$
T_{STG}	Storage Temperature Range	-55 to 150	$^\circ\text{C}$
I_S	Diode Continuous Forward Current	$T_C=25^\circ\text{C}$ 100	A
Mounted on Large Heat Sink			
$I_{DP}^{(1)}$	300 μs Pulse Drain Current Tested	$T_C=25^\circ\text{C}$ 400	A
$I_D^{(2)}$	Continuous Drain Current@ $T_C(V_{GS}=10V)$	$T_C=25^\circ\text{C}$ 100	A
		$T_C=100^\circ\text{C}$ 51	
	Continuous Drain Current@ $T_A(V_{GS}=10V)^{(3)}$	$T_A=25^\circ\text{C}$ 25	
		$T_A=70^\circ\text{C}$ 19	
P_D	Maximum Power Dissipation@ T_C	$T_C=25^\circ\text{C}$ 65	W
		$T_C=100^\circ\text{C}$ 26	
	Maximum Power Dissipation@ $T_A^{(3)}$	$T_A=25^\circ\text{C}$ 4.2	
		$T_A=70^\circ\text{C}$ 2.7	

Symbol	Parameter	Rating	Unit
$R_{\theta JC}$	Thermal Resistance-Junction to Case	1.44	$^\circ\text{C}/\text{W}$
$R_{\theta JA}^{(3)}$	Thermal Resistance-Junction to Ambient	62	$^\circ\text{C}/\text{W}$
Drain-Source Avalanche Ratings			
$E_{AS}^{(4)}$	Avalanche Energy, Single Pulsed	121	mJ

**Electrical Characteristics** ($T_C=25^\circ\text{C}$ Unless Otherwise Noted)

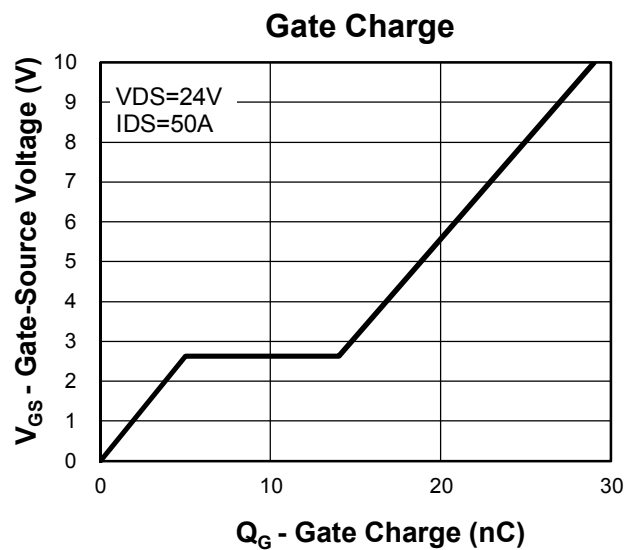
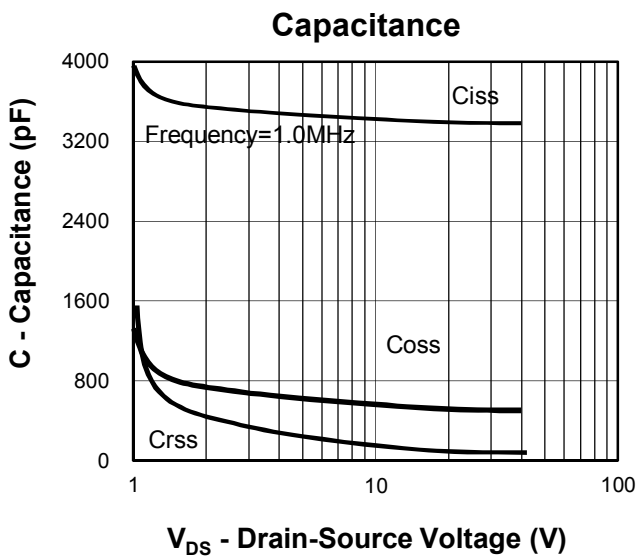
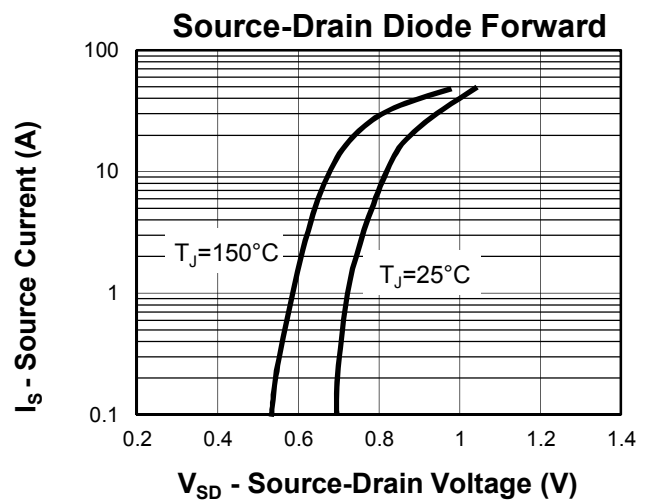
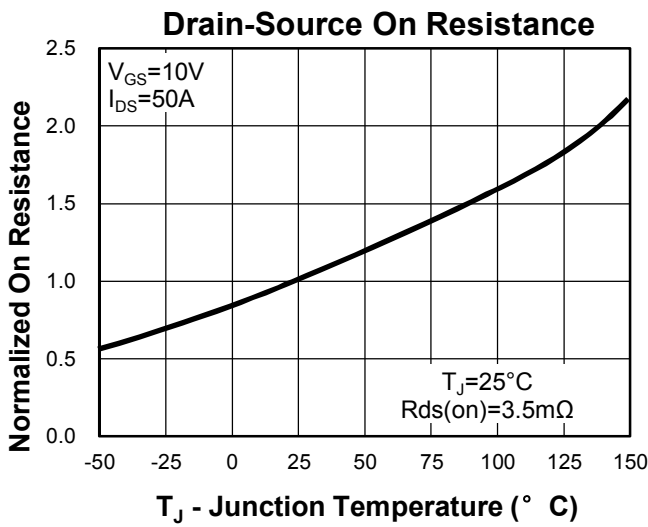
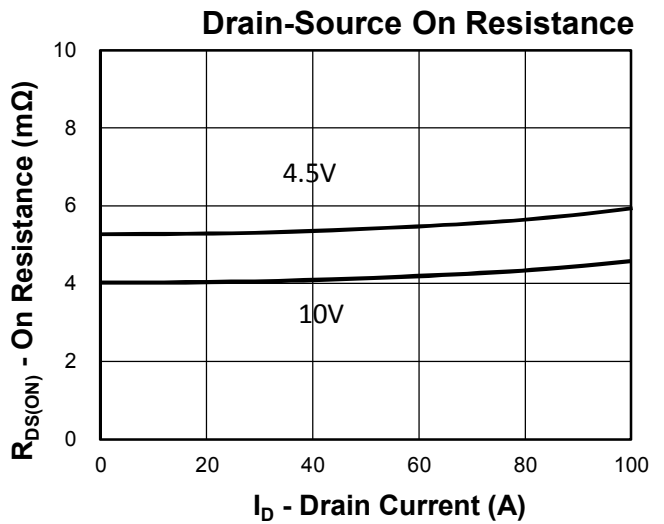
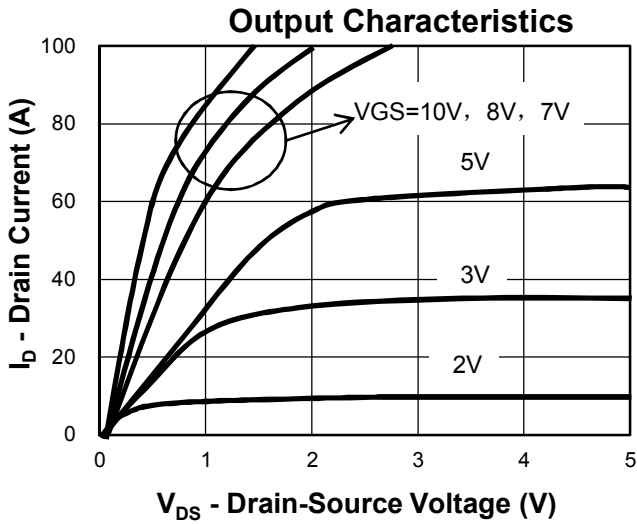
Symbol	Parameter	Test Condition	LIMIT			Unit
			Min.	Typ.	Max.	
Static Characteristics						
BV_{DSS}	Drain-Source Breakdown Voltage	$V_{GS}=0V, I_{DS}=250\mu A$	40			V
I_{DSS}	Zero Gate Voltage Drain Current	$V_{DS}=40V, V_{GS}=0V$			1	μA
		$T_J=125^\circ C$			30	
$V_{GS(th)}$	Gate Threshold Voltage	$V_{DS}=V_{GS}, I_{DS}=250\mu A$	1		2.5	V
I_{GSS}	Gate Leakage Current	$V_{GS}=\pm 20V, V_{DS}=0V$			± 100	nA
$R_{DS(ON)}^{(5)}$	Drain-Source On-state Resistance	$V_{GS}=4.5V, I_{DS}=35A$		4.6	6.0	$m\Omega$
		$V_{GS}=10V, I_{DS}=50A$		4.0	4.5	$m\Omega$
Diode Characteristics						
$V_{SD}^{(5)}$	Diode Forward Voltage	$I_{SD}=50A, V_{GS}=0V$			1.2	V
t_{rr}	Reverse Recovery Time	$I_{SD}=50A, di_{SD}/dt=100A/\mu s$		18		ns
Q_{rr}	Reverse Recovery Charge			29		nC
Dynamic Characteristics⁽⁶⁾						
R_G	Gate Resistance	$V_{GS}=0V, V_{DS}=0V, F=1MHz$		1.3		Ω
C_{iss}	Input Capacitance	$V_{GS}=0V,$ $V_{DS}=20V,$ Frequency=1.0MHz		3424		μF
C_{oss}	Output Capacitance			540		
C_{rss}	Reverse Transfer Capacitance			162		
$t_{d(ON)}$	Turn-on Delay Time	$V_{DD}=20V, I_{DS}=50A,$ $V_{GEN}=10V, R_G=4.7\Omega$		13		ns
t_r	Turn-on Rise Time			21		
$t_{d(OFF)}$	Turn-off Delay Time			29		
t_f	Turn-off Fall Time			9		
Gate Charge Characteristics⁽⁶⁾						
Q_g	Total Gate Charge	$V_{DS}=32V, V_{GS}=10V,$ $I_{DS}=50A$		29		nC
Q_{gs}	Gate-Source Charge			5		
Q_{gd}	Gate-Drain Charge			9		

Typical Characteristics



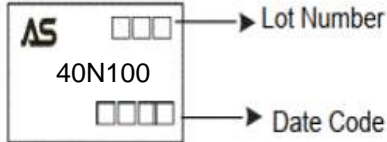


Typical Characteristics

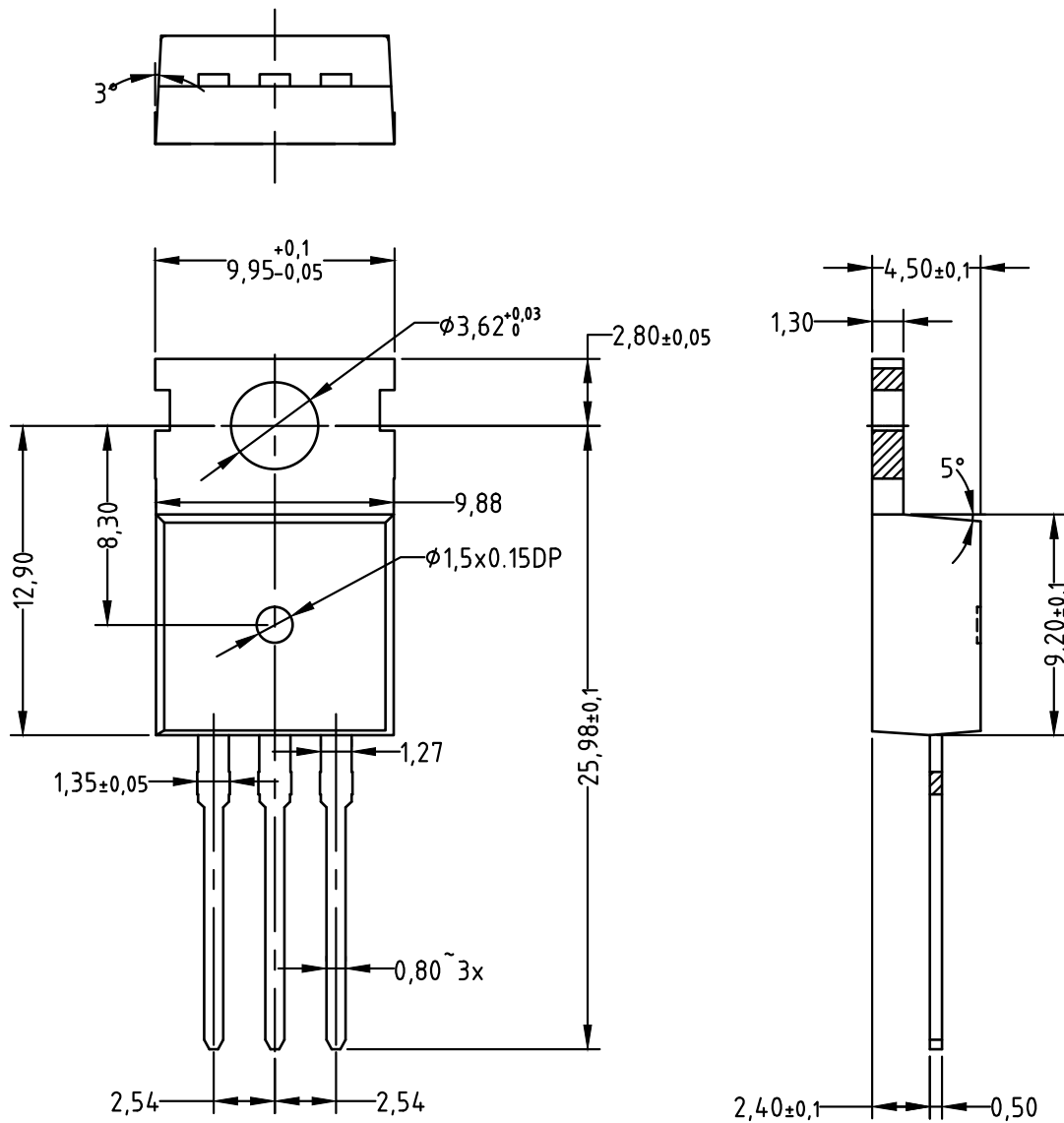


Ordering and Marking Information

Ordering Device No.	Marking	Package	Packing	Quantity
ASDM40N100P-T	40N100	TO-220	Tube	50/Tube

PACKAGE	MARKING
TO-220	 <p>The diagram shows a TO-220 package marking. It includes the manufacturer's logo 'AS', a three-digit Lot Number (represented by three squares), the part number '40N100', and a four-digit Date Code (represented by four squares). Arrows point from the Lot Number and Date Code labels to their respective square markers on the package.</p>

TO-220



IMPORTANT NOTICE

Xi'an Ascend Semiconductor incorporated MAKES NO WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, WITH REGARDS TO THIS DOCUMENT, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE (AND THEIR EQUIVALENTS UNDER THE LAWS OF ANY JURISDICTION).

Xi'an Ascend Semiconductor Incorporated and its subsidiaries reserve the right to make modifications, enhancements, improvements, corrections or other changes without further notice to this document and any product described herein. Xi'an Ascend Semiconductor Incorporated does not assume any liability arising out of the application or use of this document or any product described herein; neither does Xi'an Ascend Semiconductor Incorporated convey any license under its patent or trademark rights, nor the rights of others. Any Customer or user of this document or products described herein in such applications shall assume .

all risks of such use and will agree to hold Ascendsemi Incorporated and all the companies whose products are represented on Xi'an Ascend Semiconductor Incorporated website, harmless against all damages.

Xi'an Ascend Semiconductor Incorporated does not warrant or accept any liability whatsoever in respect of any products purchased through unauthorized sales channel. Should Customers purchase or use Xi'an Ascend Semiconductor Incorporated products for any unintended or unauthorized application, Customers shall indemnify and hold Xi'an Ascend Semiconductor Incorporated and its representatives harmless against all claims, damages, expenses, and attorney fees arising out of, directly or indirectly, any claim of personal injury or death associated with such unintended or unauthorized application.

www.ascendsemi.com