



原厂直供，技术支持。 联系人：李生 电话：18126115420（微信同号） **ASC20N3300MT4**

## 3300V N-Channel MOSFET

### Description

Silicon Carbide (SiC) MOSFET use a completely new technology that provide superior switching performance and higher reliability compared to Silicon. In addition, the low ON resistance and compact chip size ensure low capacitance and gate charge. Consequently, system benefits include highest efficiency, faster operating frequency, increased power density, reduced EMI, and reduced system size.

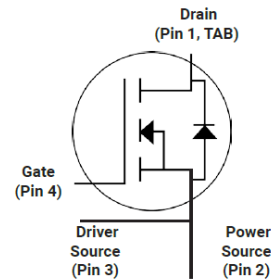
### Features

- High Speed Switching with Low Capacitances
- High Blocking Voltage with Low RDS(on)
- Simple to drive with Standard Gate Drive
- 100% avalanche tested
- Maximum junction temperature of 150°C
- ROHS Compliant



### Application

- EV Charging
- DC-AC Inverters
- High Voltage DC/DC Converters
- Switch Mode Power Supplies
- Power Factor Correction Modules
- Motor Drives



### Ordering Information

Part Number	Marking	Package	Packaging
ASC20N3300MT4	ASC20N3300MT4	TO-247	Tube



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### Absolute Maximum Ratings( $T_c=25^\circ\text{C}$ )

Symbol	Parameter	Value	Unit
$V_{DS}$	Drain-Source Voltage	3300	V
$I_D$	Drain Current(continuous)at $T_c=25^\circ\text{C}$	20	A
$I_D$	Drain Current(continuous)at $T_c=100^\circ\text{C}$	12	A
$I_{DM}$	Drain Current (pulsed)	40	A
$V_{GS}$	Gate-Source Voltage	-10/+25	V
$P_D$	Power Dissipation $T_c = 25^\circ\text{C}$	120	W
$T_J, T_{stg}$	Junction and Storage Temperature Range	-55 to +150	$^\circ\text{C}$

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

#### Typical Performance-Static

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
$BV_{DS}$	Drain-source Breakdown Voltage	$I_D=250\mu\text{A}, V_{GS}=0\text{V}$	3300			V
$I_{DSS}$	Zero Gate Voltage Drain Current	$V_{DS}=3300\text{V}, V_{GS}=0\text{V}, T_J=25^\circ\text{C}$			100	$\mu\text{A}$
$I_{GSS}$	Gate-body Leakage Current	$V_{DS}=0\text{V}; V_{GS}=-10$ or $20\text{V}$			250	nA
$V_{GS(th)}$	Gate Threshold Voltage	$V_{DS}=V_{GS}, I_D=5\text{mA}$	2		4	V
$R_{DS(on)}$	Static Drain-source On Resistance	$V_{GS}=20\text{V}, I_D=10\text{A}$		250	300	$\text{m}\Omega$
$R_G$	Gate Resistance	$V_{GS}=0\text{V}, f=1\text{MHz}$		3		$\Omega$

#### Typical Performance-Dynamic

$C_{iss}$	Input Capacitance	$V_{DS}=800\text{V}, f=1000\text{KHz}, V_{GS}=0\text{V}$	600		pF
$C_{oss}$	Output Capacitance		50		pF
$C_{rss}$	Reverse Transfer Capacitance		8		pF
$Q_g$	Total Gate Charge	$V_{DS}=800\text{V}, I_D=10\text{A}, V_{GS}=0\sim 20\text{V}$	9		nC
$Q_{gs}$	Gate-source Charge		11		nC
$Q_{gd}$	Gate-Drain Charge		30		nC
$t_{d(on)}$	Turn-on Delay Time	$V_{DD}=800\text{V}, I_D=10\text{A}, V_{GS}=-0\text{V}\sim 20\text{V}, R_G=0\Omega,$	7		ns
$t_r$	Rise Time		8		ns
$t_{d(off)}$	Turn-off Delay Time		12		ns
$t_f$	Fall Time		13		ns



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### Typical Performance-Reverse Diode

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
$V_{FSD}$	Forward Voltage	$V_{GS}=0V, I_F=10A, T_J=25^{\circ}C$	3		6	V
		$V_{GS}=0V, I_F=10A, T_J=150^{\circ}C$	3		6	V
$t_{rr}$	Reverse Recovery Time	$V_{GS}=0V, I_F=10A,$ $V_R=800V,$ $di/dt=100A/\mu s$		9		ns
$Q_{rr}$	Reverse Recovery Charge			11		nC
$I_{rrm}$	Peak Reverse Recovery Current			29		A

### Thermal Characteristics

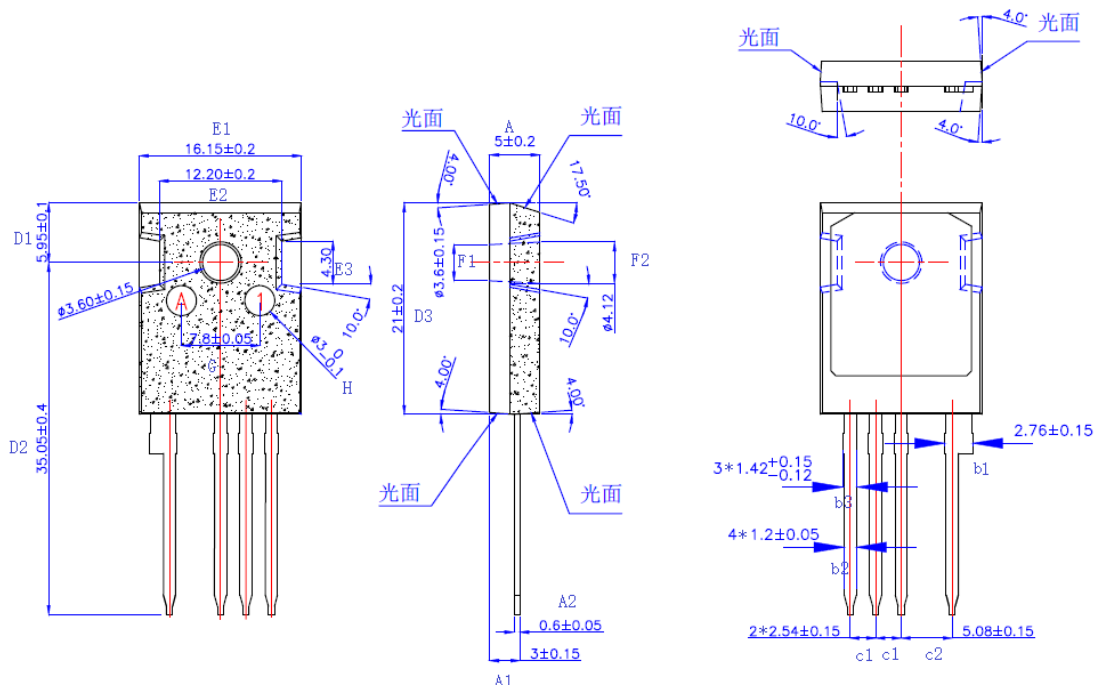
Symbol	Parameter	Value.	Unit
$R_{\theta JC}$	Thermal Resistance, Junction-to-Case	0.6	$^{\circ}C/W$
$R_{\theta JA}$	Thermal Resistance, Junction-to-Air	40	$^{\circ}C/W$

The values are based on the junction-to case thermal impedance which is measured with the device mounted to a large heat sink assuming maximum junction temperature of  $T_J(\max)=150^{\circ}C$



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Package Drawing:



Dimensions ( UNIT: mm)

SYM	MILLIMETERS		SYM	MILLIMETERS	
	MIN	MAX		MIN	MAX
A	4.98	5.02	D2	34.65	35.45
A1	2.85	3.15	D3	20.80	21.20
A2	0.55	0.65	E1	15.95	16.35
b1	2.61	2.91	E2	12.00	12.40
b2	1.15	1.25	F1	3.45	3.75
b3	1.30	1.57	F2	4.12	4.12
c1	2.39	2.69	G	7.75	7.85
c2	4.93	5.23	H	2.90	3.10
D1	5.85	6.05			