Features

- High Temperature, Humidity, and Bias Operation
- Ultra Low Loss
- High-Frequency Operation
- Zero Turn-off Tail Current from MOSFET
- Normally-off, Fail-safe Device Operation
- Ease of Paralleling
- AlN Substrate with Low Thermal Resistance
- Integrated NTC temperature sensor
- Copper Base Plate

Potential Applitions

- High power converters
- Motor drives
- Servo drives
- UPS systems
- Wind turbines

Package 152mm x 62.5mm x 20.5mm

Part Number	Package	Marking
ASC800N1200MED	Econodual	ASC800N1200MED

Absolute Maximum Ratings (T_C = 25℃ unless otherwise specified)

Symbol	Parameter	Min.	Typ.	Max.	Unit
V_{DS}	Drain-Source Voltage			1200	V
V_{GS}	Gate-Source Voltage	-10		+20	V
I_D	Drain Current(continuous) V_{GS} =20V		800		A
I_{DM}	Drain Current (10us pulsed)		1600		A
P_D	Power Dissipation T_C = 25℃			960	W
T_C,Tstg	Operating and Storage Temperature Range	-40		+150	℃
L_{Stray}	Stray Inductance			20	nH

Electrical Characteristics (T_C = 25℃ unless otherwise specified)

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
BV_{DS}	Drain-source BreakdownVoltage	I_D=3mA,V_{GS}=0V	1200			V
I_{DSS}	Zero Gate Voltage Drain Current	V_{DS} =1200V, V_{GS} =0V		120	1200	uA
I_{GSS}	Gate-body Leakage Current	V_{GS}=-10/+20V,V_{DS}=0V		1	3	uA
$V_{GS(th)}$	Gate Threshold Voltage	V_{DS}= $V_{GS,}$ I_D=240mA	2		4	V
$R_{DS(on)}$	Static Drain-source On Resistance	V_{GS}=20V, I_D=600A		2.2	3	mΩ
Ciss	Input Capacitance	VDS=800V， ID=800A, VGS=-4～20V		58		nF
Coss	Output Capacitance			1.5		
Crss	Reverse Transfer Capacitance			300		pF
Eon	Turn-On Switching Energy	VDD=800V,VGS=-4/+20V ID=600A,RG(ext=5Ω) Load=157uH,TJ=25℃		14		mJ
Eoff	Turn-Off Switching Energy			5		mJ
QGS	Gate-Source Charge	VDD=800V, VGS=-4/+15V ID=450A,		700		nC
QGD	Gate-Drain Charge			550		
QG	Total Gate Charge			2410		
td（on）	Turn-on delay time	VDD=800V,VGS=-4/+20V ID=600A,		155		nS
tr	Rise Time			29		
td(off)	Turn-off delay time			79		
tf	Fall Time			26		
Vsd	Diode Forward voltage	If=450A, VGS=0			6	V

Thermal Characteristics

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
$R_{\theta JC}$	Thermal Resistance, Junction-to-Case	Tc=90℃，PD=150W		0.13		℃/W

Typical Performance

Figure 1. Output Characteristics

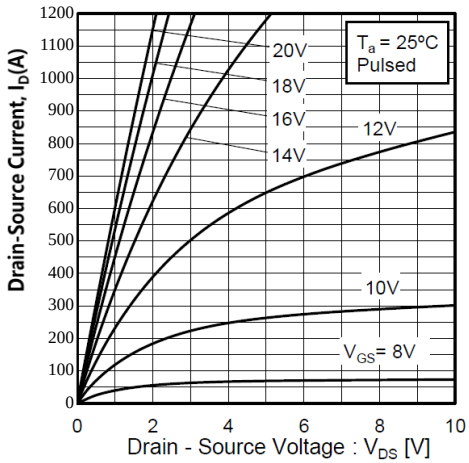


Figure 2. Normalized On-Resistance vs. Temperature

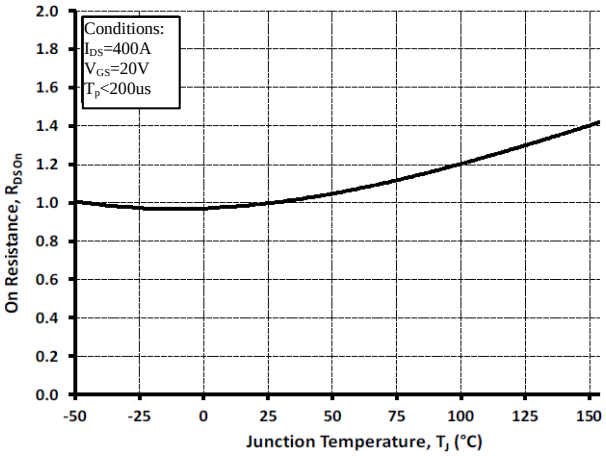


Figure 3. Threshold Voltage vs. Temperature

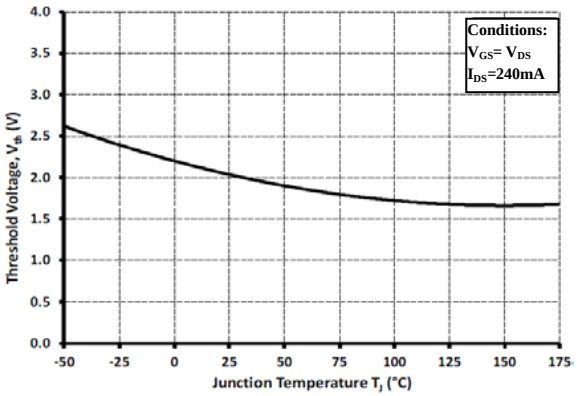


Figure 4. Transfer Characteristic for Various T_J

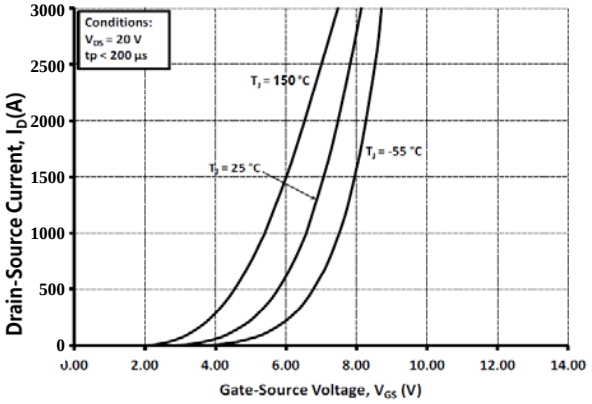


Figure 5. Diode Characteristic at 25 ˚C

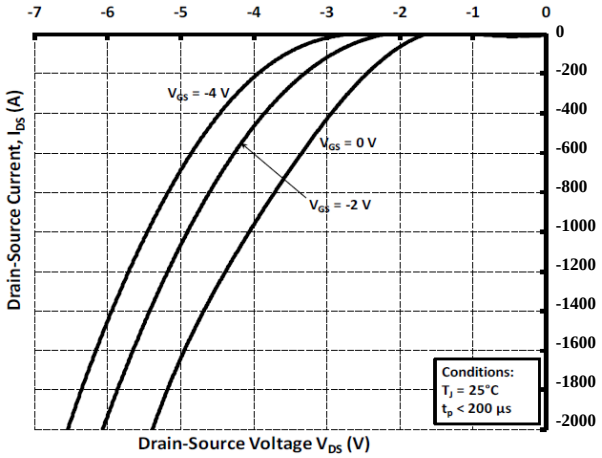


Figure 6. Typical Gate Charge Characteristics

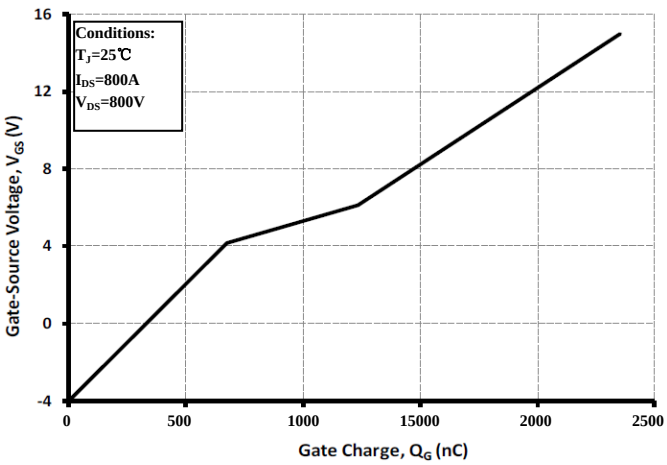


Figure 7. Typical Capacitances vs. Drain-Source Voltage

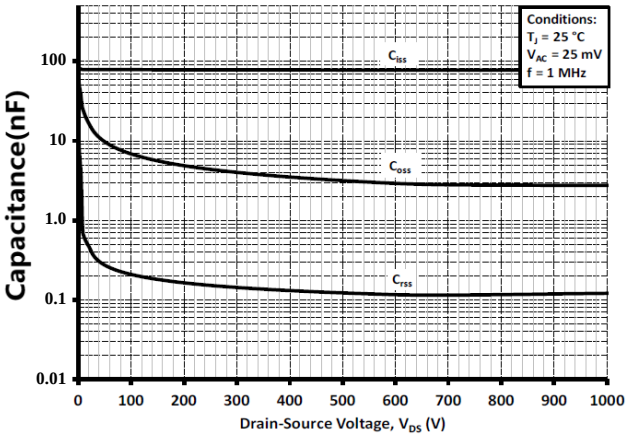


Figure 8. Inductive Switching Energy vs.R_G(ext)

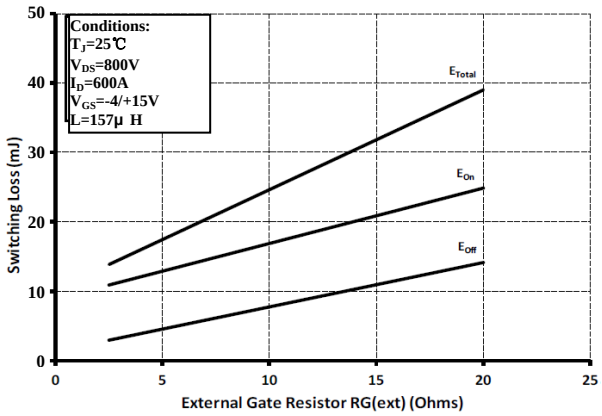


Figure 9. Resistive Switching Time Description

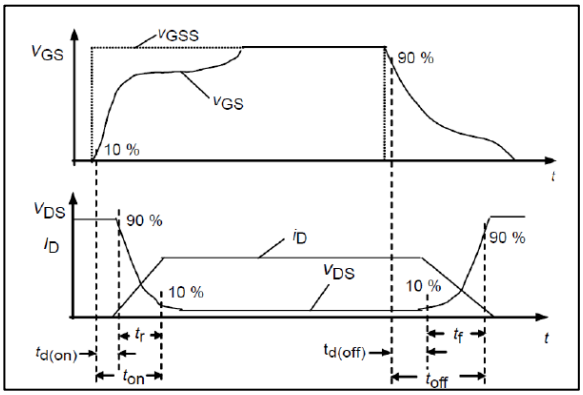
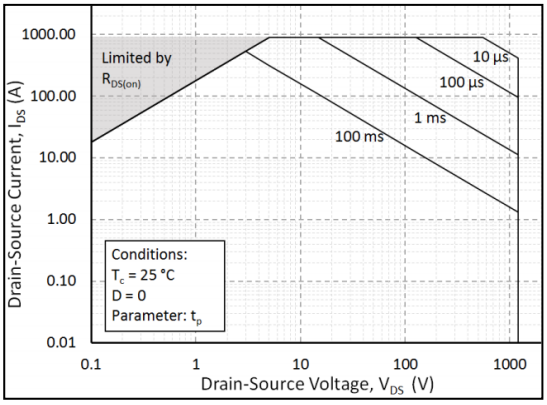
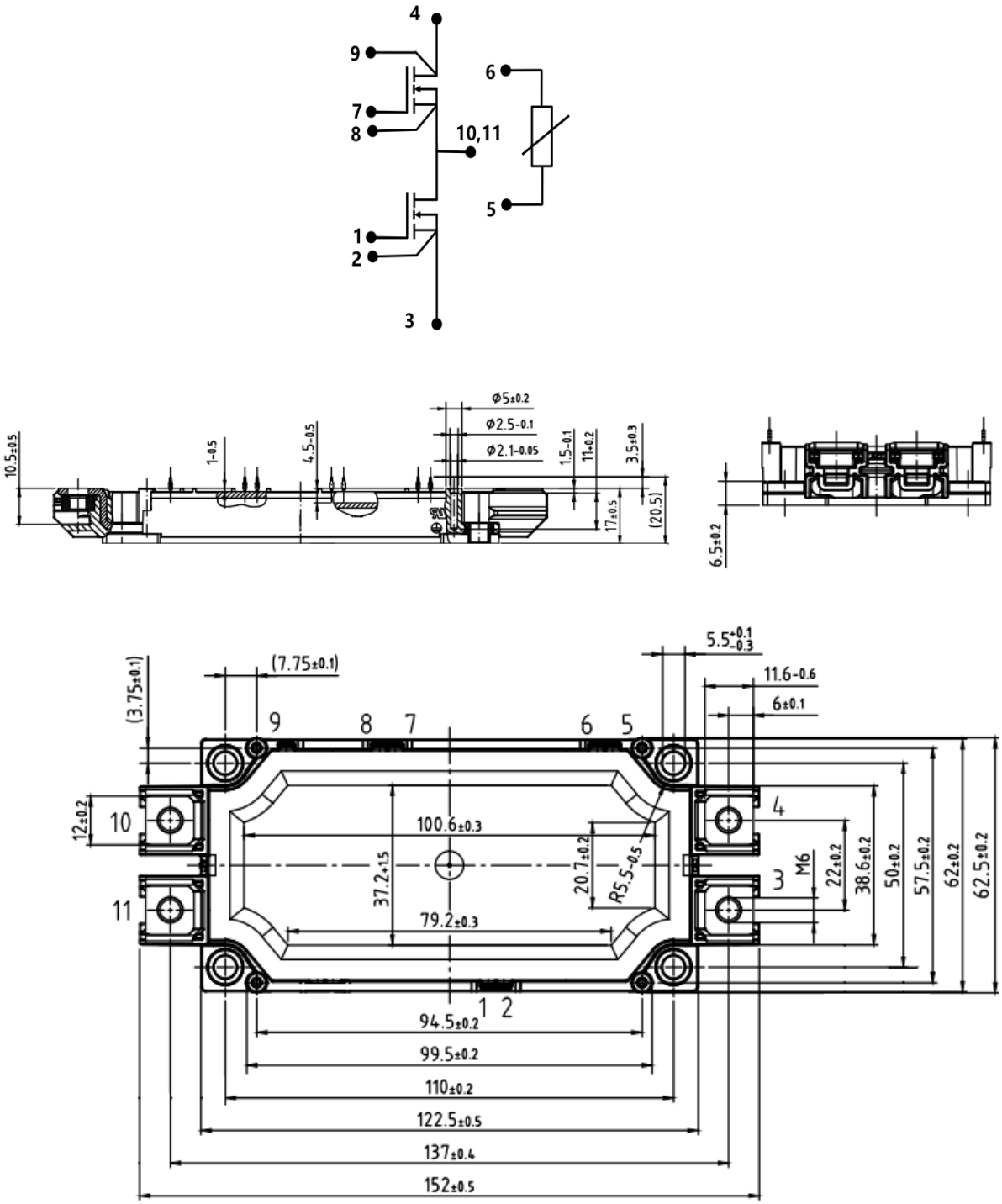
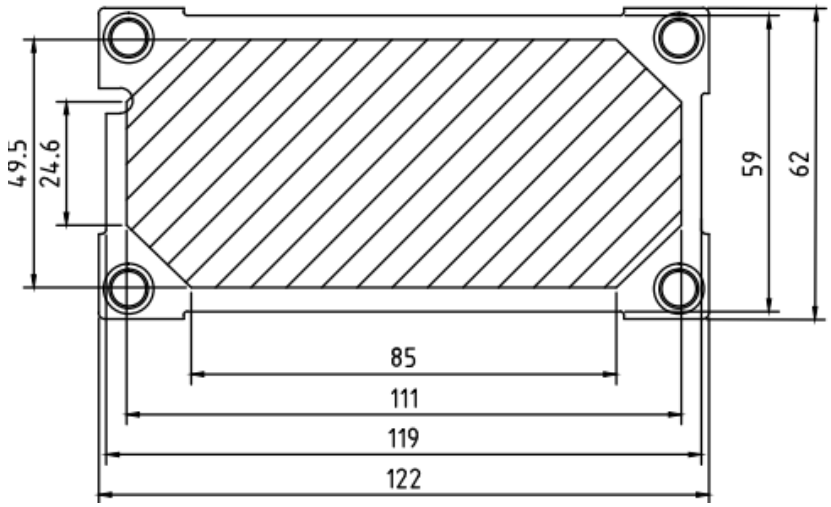


Figure 10. Safe Operating Area



Package Drawing:





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