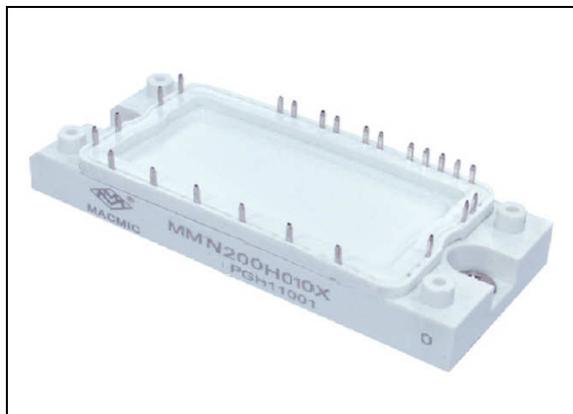


FEATURES

- N-channel, very low on-resistance $R_{DS(on)}$
- 175°C operating temperature
- Solderable pins for PCB mounting
- Temperature sense included

APPLICATIONS

- AC motor control
- Motion/servo control
- Inverter and power supplies



INVERTER SECTOR

ABSOLUTE MAXIMUM RATINGS

T_C=25°C unless otherwise specified

Symbol	Parameter	Test Conditions	Values	Unit
MOSFET				
V _{DSS}	Drain - Source Voltage	T _{Vj} =25°C	100	V
V _{GSS}	Gate - Source Voltage		±20	V
I _D	Continuous Drain Current	T _C =25°C	200	A
		T _C =100°C	200	A
I _{D pulse}	Pulsed Drain Current	T _C =25°C	800	A
E _{AS}	Single Pulse Avalanche Energy	I _D =100A, R _{GS} =25 Ω	350	mJ
P _{tot}	Power Dissipation Per MOSFET		275	W
Reverse Diode				
V _{RRM}	Repetitive Reverse Voltage	T _{Vj} =25°C	100	V
I _S	Diode continuous Forward Current	T _C =25°C	200	A
		T _C =100°C	200	A
I _{S pulse}	Diode pulse Current	T _C =25°C	800	A

INVERTER SECTOR

ELECTRICAL AND THERMAL CHARACTERISTICS

 $T_C=25^\circ\text{C}$ unless otherwise specified

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
MOSFET						
$V_{(BR)DSS}$	Drain-Source Breakdown Voltage	$V_{GS}=0V, I_D=1mA$	100			V
$R_{DS(ON)}$	Drain-Source ON Resistance	$V_{GS}=10V, I_D=100A$ (TO 262)			4.5	m Ω
		$V_{GS}=10V, I_D=50A$ (TO 263)			4.2	m Ω
$V_{GS(th)}$	Gate Threshold Voltage	$V_{GS}=V_{DS}, I_D=150\mu A$	2.0	2.7	3.5	V
I_{GSS}	Gate Leakage Current	$V_{DS}=0V, V_{GS}=20V$			100	nA
I_{DSS}	Zero Gate Voltage Drain Current	$V_{DS}=100V, V_{GS}=0V$			10	μA
Q_g	Total Gate Charge	$V_{DD}=50V, I_D=200A, V_{GS}=10V$		190		nC
Q_{gs}	Gate-Source Charge			60		nC
Q_{gd}	Gate-Drain Charge			35		nC
g_{fs}	Forward Transconductance	$I_D=200A$		145		S
C_{iss}	Input Capacitance	$V_{DS}=50V, V_{GS}=0V,$ $f=1MHz$		12.7		nF
C_{oss}	Output Capacitance			2.5		nF
C_{rss}	Reverse Transfer Capacitance			100		pF
$t_{d(on)}$	Turn - on Delay Time	$V_{DD}=50V, I_D=100A,$ $R_G=0.8\Omega,$ $V_{GS}=10V,$		35		ns
t_r	Rise Time			78		ns
$t_{d(off)}$	Turn - off Delay Time			65		ns
t_f	Fall Time			22		ns
$R_{th(ch-c)}$	Thermal resistance, channel to case				0.55	$^\circ\text{C}/W$
Reverse Diode						
V_{SD}	Forward Voltage	$I_F=200A, V_{GE}=0V, T_{vj}=25^\circ\text{C}$		1.0	1.2	V
t_{rr}	Reverse Recovery Time	$I_F=200A, V_R=50V$		100		ns
Q_{RRM}	Max. Reverse Recovery Charge	$di_F/dt=-100A/\mu s$ $T_{vj}=125^\circ\text{C}$		300		nc

NTC AND OTHERS SECTOR

CHARACTERISTIC VALUES

 $T_C=25^\circ\text{C}$ unless otherwise specified

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
$R_{25\text{ NTC}}$	Resistance	$T_C=25^\circ\text{C}$		5		K Ω
$B_{25/50\text{ NTC}}$				3375		K
$R_1 - R_6$	Resistance	$T_C=25^\circ\text{C}$		10		Ω
$R_7 - R_{12}$	Resistance	$T_C=25^\circ\text{C}$		51		K Ω
D1-D6	Zener diode			± 18		V
C	Capacitance			0.9		μF

MODULE CHARACTERISTICS

$T_C=25^{\circ}\text{C}$ unless otherwise specified

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
$T_{vj\ max}$	Max. Junction Temperature				175	$^{\circ}\text{C}$
$T_{vj\ op}$	Operating Temperature		-40		150	$^{\circ}\text{C}$
T_{stg}	Storage Temperature		-40		150	$^{\circ}\text{C}$
V_{isol}	Insulation Test Voltage	AC, $t=1\text{min}$		3000		V
Weight				180		g

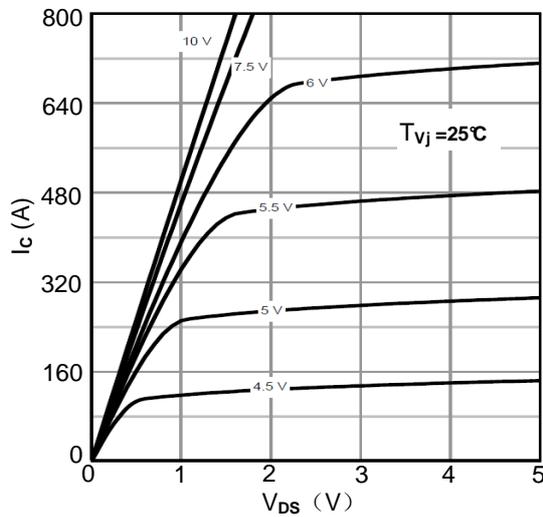


Figure1. Typical Output Characteristics MOSFET

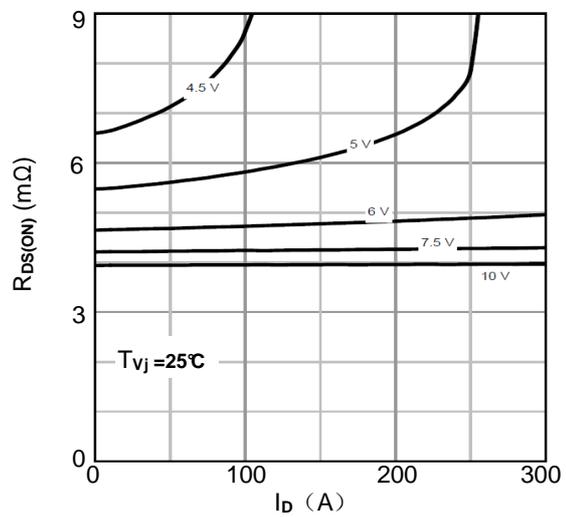


Figure2. Typical Drain-Source ON Resistance-MOSFET

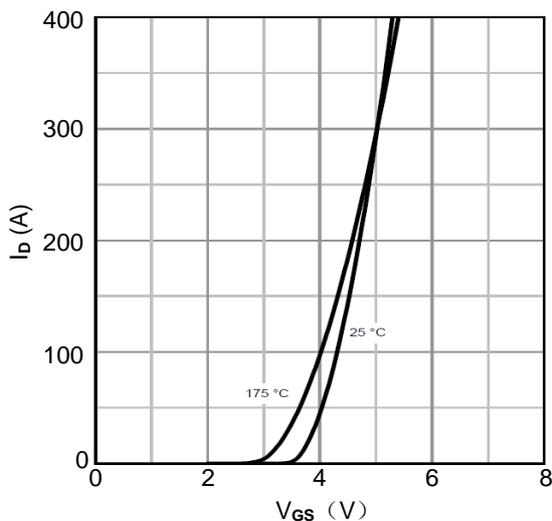


Figure3. Typical Transfer characteristics MOSFET

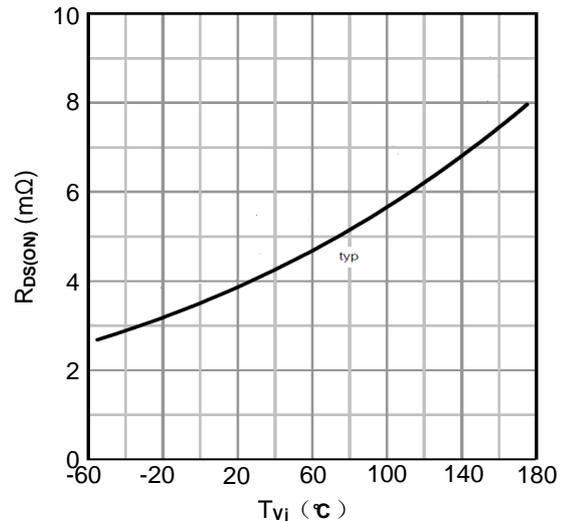


Figure4. Typical Drain-Source ON Resistance-MOSFET

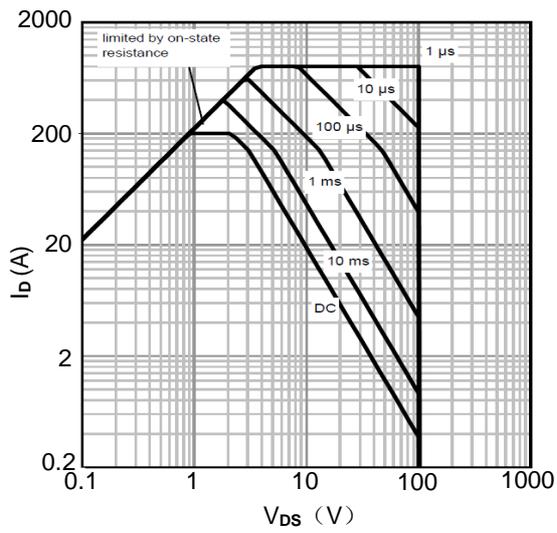


Figure 5. Safe Operating Area-MOSFET

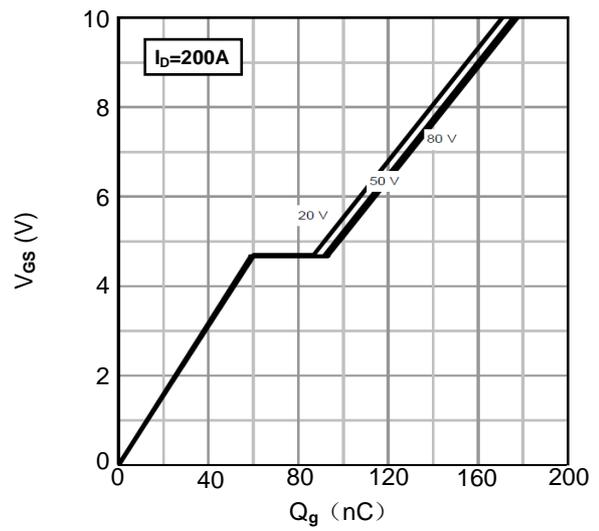


Figure 6. Typical Gate Charge-MOSFET

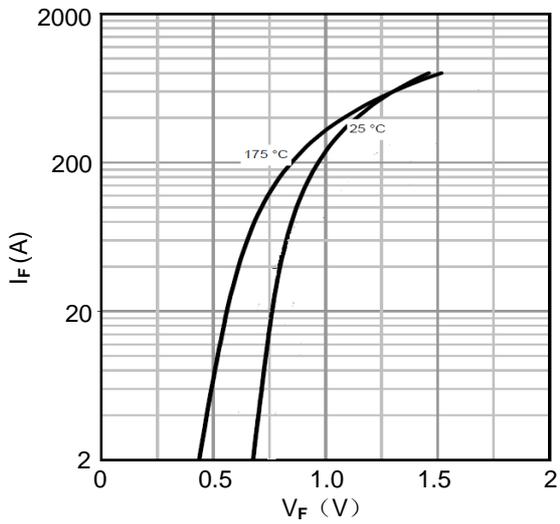


Figure 7. Diode Forward Characteristics

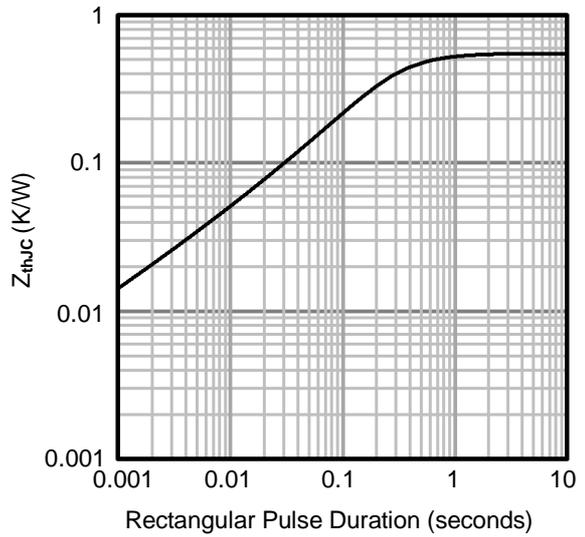


Figure 8. Transient Thermal Impedance-MOSFET

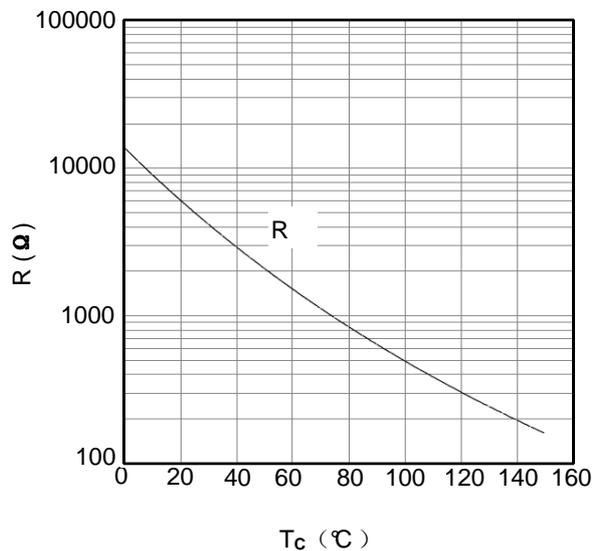


Figure 9. NTC Characteristics

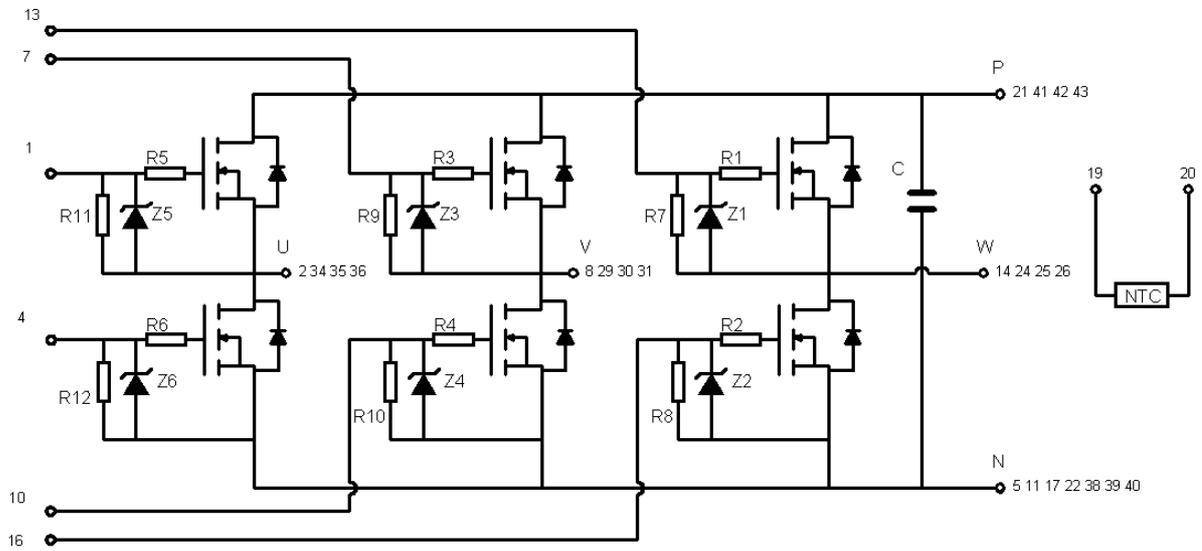
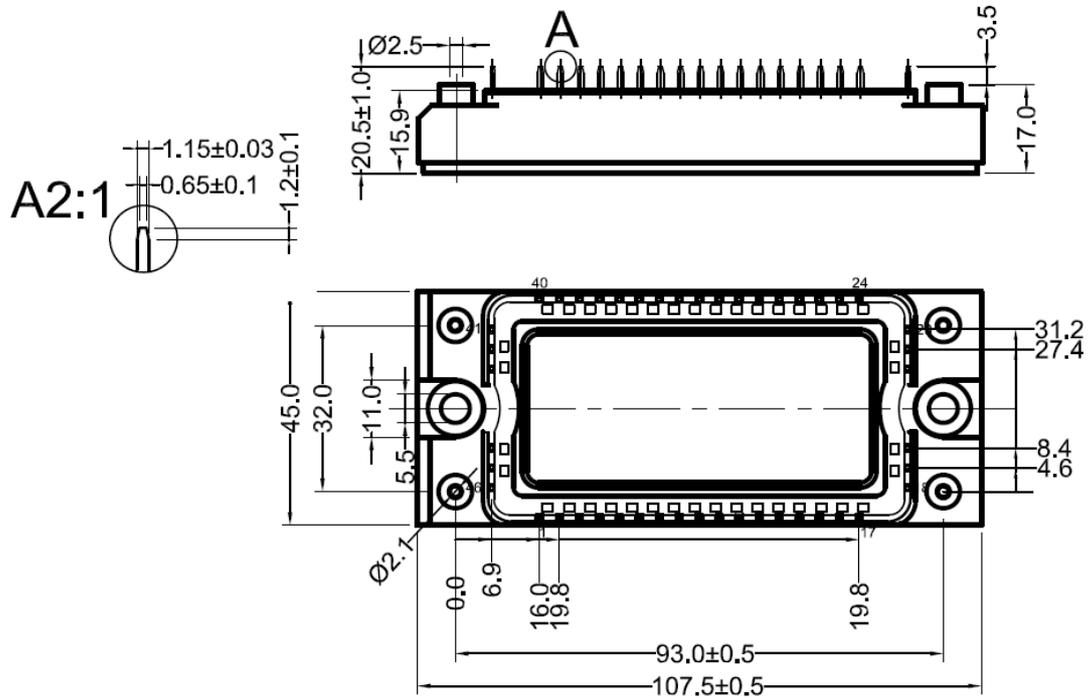


Figure10. Circuit Diagram



Dimensions (mm)
Figure11. Package Outline