

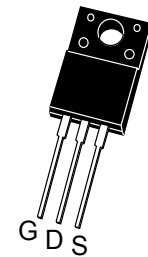
Features

- Wide Bandgap SiC MOSFET Technology
- Low On-Resistance with High Blocking Voltage
- Low Capacitances with High-Speed Switching
- Low Reverse Recovery (Qrr)
- Easy to Parallel and Simple to Drive
- Robust against Parasitic Turn on Even 0V Turn off Gate Voltage

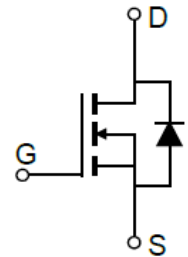
Parameter	Value	Unit
V_{DS}	650	V
$R_{DS(on)}$ _typ. $V_{GS}=18V$	130	mΩ
I_D	20	A

Benefits

- Reduced Switching Losses
- Increased System Switching Frequency
- Increased Power Density
- Reduction of Heat Sink Requirements
- Reduced EMI



ITO-220AB



Application

- Switch Mode Power Supplies
- High Voltage DC/DC Converters
- Battery Chargers
- Motor Drives
- Pulsed Power Applications



Maximum ratings at $T_j=25^{\circ}\text{C}$, Unless otherwise specified

Parameter	Symbol	Test Condition	Value	Unit
Drain to Source Voltage	V_{DS}	$V_{GS} = 0V, I_D = 500\mu A$	650	V
Gate to Source Voltage	V_{GS}	Absolute maximum values	-10/+22	V
Recommended Operation Voltage of Gate to Source	V_{GSop}	Recommended operational values	0/+18	V
Continuous Drain Current	I_D	$V_{GS}=15V, T_C=25^{\circ}\text{C}$	20	A
		$V_{GS}=15V, T_C=100^{\circ}\text{C}$	18	
Pulsed Drain Current	I_{DM}	$V_{GS}=15V, T_C=25^{\circ}\text{C}$	40	A
Power Dissipation	P_{tot}	$T_C=25^{\circ}\text{C}, T_j=175^{\circ}\text{C}$	38	W
Operating and Storage Temperature	T_j, T_{stg}		-55 to +175	$^{\circ}\text{C}$

Thermal Characteristics

Parameter	Symbol	Value			Unit
		Min.	Typ.	Max.	
Thermal Resistance from Junction to Case	$R_{th(j-c)}$	-	4.00	-	$^{\circ}\text{C/W}$

Electrical Characteristics

Static Characteristics

Parameter	Symbol	Test Condition	Value			Unit
			Min.	Typ.	Max.	
Drain to Source Breakdown Voltage	$V_{(BR)DSS}$	$V_{GS}=0V, I_D=500\mu A$	650			V
Gate Threshold Voltage	$V_{GS(th)}$	$V_{GS}=V_{DS}, I_D=3.5mA$	2.7		4.5	V
Zero Gate Voltage Drain Current	I_{DSS}	$V_{GS}=0V, V_{DS}=650V, T_j=25^{\circ}\text{C}$	-		10	μA
Gate to Source Leakage Current	I_{GSS+}	$V_{GS}=22V, V_{DS}=0V$	-		250	nA
	I_{GSS-}	$V_{GS}=-10V, V_{DS}=0V$	-		-250	
Drain to Source on Resistance	$R_{DS(on)}$	$V_{GS}=15V, I_D=8.5A$	-	190	250	m Ω
		$V_{GS}=15V, I_D=8.5A, T_j=175^{\circ}\text{C}$		170		
		$V_{GS}=18V, I_D=8.5A$	-	130	190	
		$V_{GS}=18V, I_D=8.5A, T_j=175^{\circ}\text{C}$		140		



Dynamic Characteristics

Parameter	Symbol	Test Condition	Value			Unit
			Min.	Typ.	Max.	
Input Capacitance	C_{iss}	$V_{GS}=0V, V_{DS}=500V, f=1MHz,$ $T_j=25^{\circ}C$		491		pF
Output Capacitance	C_{oss}			39		
Reverse Transfer Capacitance	C_{rss}			4.2		
Total Gate Charge	Q_g	$V_{GS}=0/15V, V_{DS}=500V, I_b=8.5A,$ $T_j=25^{\circ}C$		28.6		nC
Gate-Source Charge	Q_{gs}			8.3		
Gate-Drain Charge	Q_{gd}			13.8		
Gate Resistance	R_g	$V_{AC}=25mV, f=1MHz$		6.5		Ω

Switching Characteristics

Parameter	Symbol	Test Condition	Value			Unit
			Min.	Typ.	Max.	
Turn-On Delay Time	$t_{d(on)}$	$V_{GS}=0/15V, V_{DD}=500V,$ $I_b=8.5A, R_g=10\Omega$		16		ns
Rise Time	t_r			55		
Turn-Off Delay Time	$t_{d(off)}$			34		
Fall Time	t_f			71		

Reverse Diode Characteristics

Parameter	Symbol	Test Condition	Value			Unit
			Min.	Typ.	Max.	
Diode Forward Voltage	V_{SD}	$V_{GS}=0V, I_{SD}=5A, T_j=25^{\circ}C$	-	4.0		V
Continuous Diode Forward Current	I_S	$V_{GS}=0V, T_j=25^{\circ}C$		20		A
Reverse Recovery Time	t_{rr}	$V_{GS}=0V, I_{SD}=8.5A,$ $V_R=500V, di/dt=530A/us, T_j=25^{\circ}C$		17.6		ns
Reverse Recovery Charge	Q_{rr}			43		nC
Peak Reverse Recovery Current	I_{rrm}			4.2		A



Typical Performance

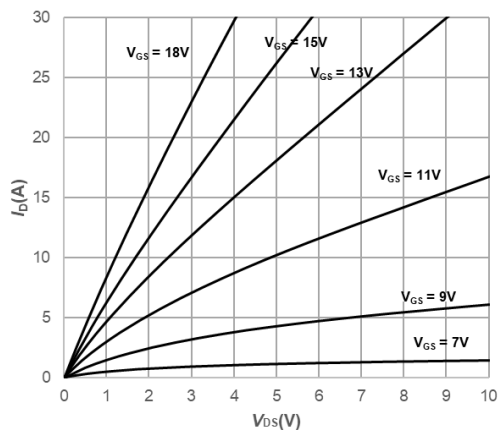


Fig1. Output Characteristics $T_j = 25^\circ\text{C}$

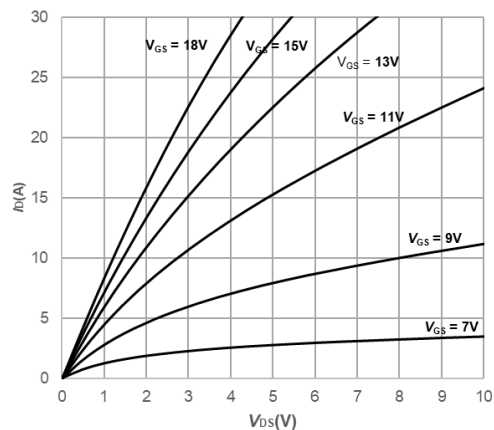


Fig2. Output Characteristics $T_j = 175^\circ\text{C}$

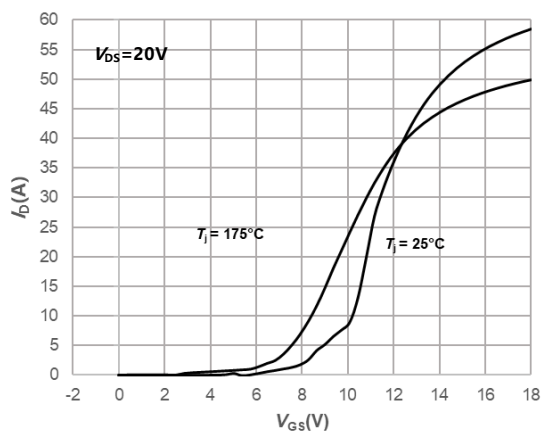


Fig3. Typical Transfer Characteristics

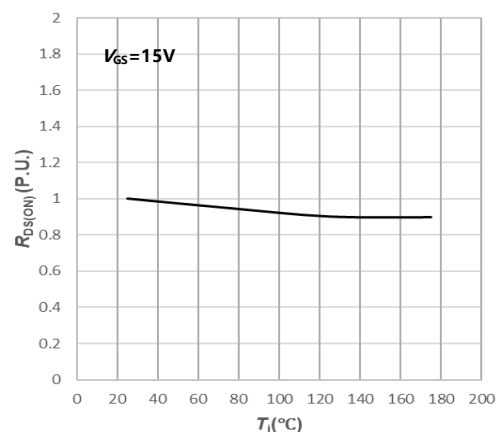


Fig4. Normalized On-Resistance vs. Temperature

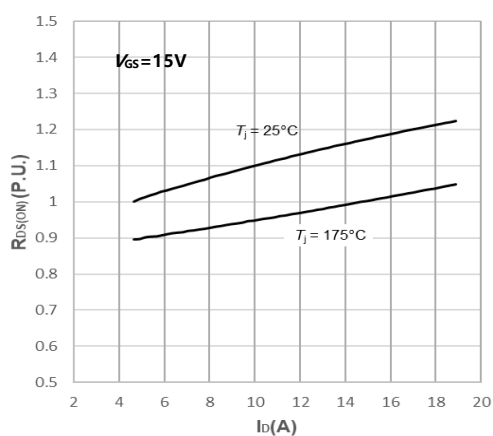


Fig5. Normalized On-Resistance vs. Drain Current For Various Temperatures

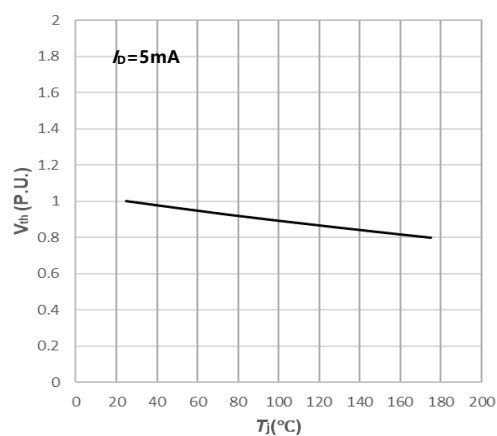


Fig6. Normalized Threshold Voltage vs. Temperature



Typical Performance

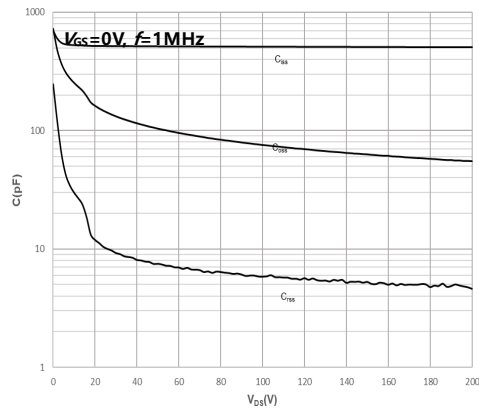


Fig7. Capacitances vs. Drain-Source Voltage (0-200V)

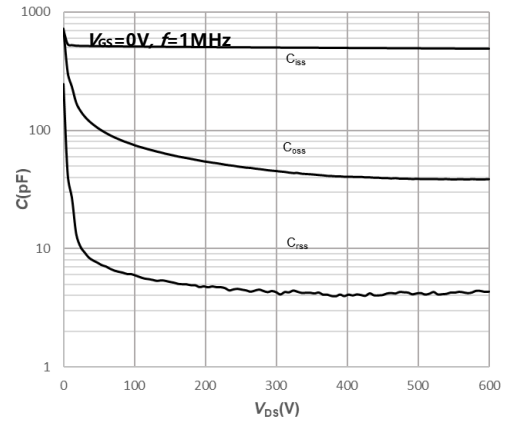


Fig8. Capacitances vs. Drain-Source Voltage (0-600V)

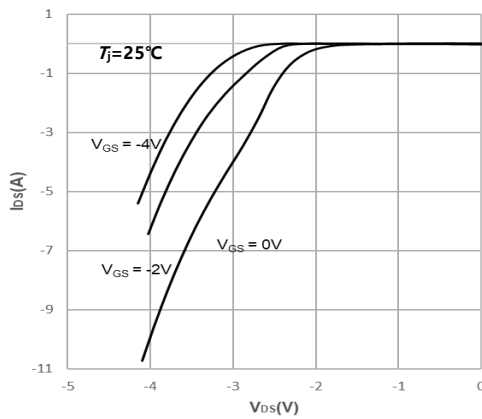
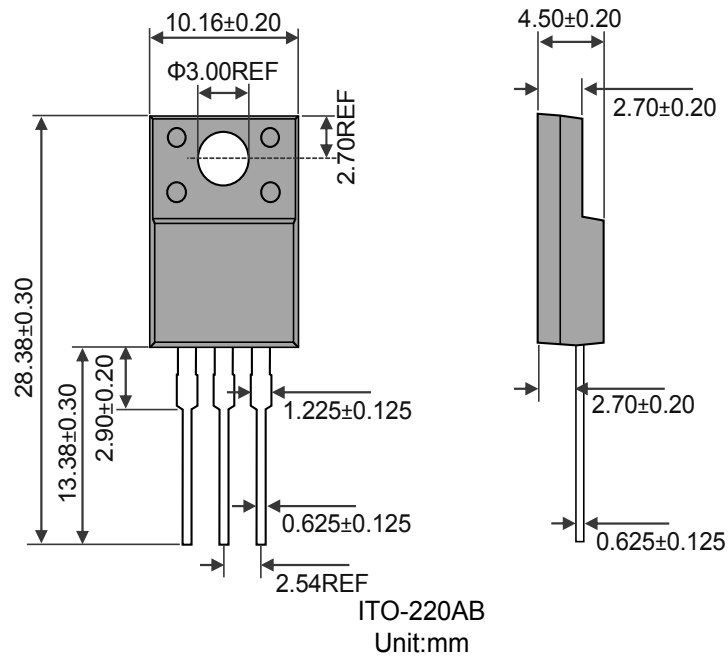


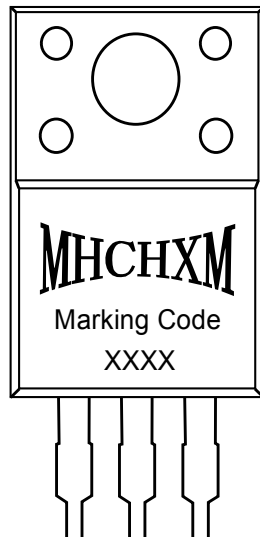
Fig9. Body Diode Characteristics



Package Outline Dimensions



Marking Information



“MHCHXM”= Product Logo

“Marking Code”= The Following

“XXXX”= Date Code Marking

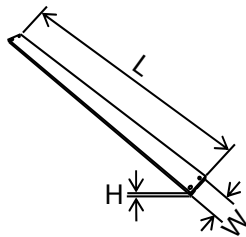
Marking Code	Part Number
C65N130F1	HXMC65N130F1



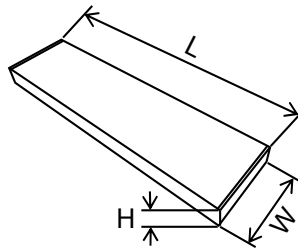
Packing Information

Packaging	Part Number	Quantity(pcs)	Size(mm)
Tube	Tube	50	L534×W33×H7
	Inner Box	1000	L560×W150×H40
	Outer Box	5000	L580×W235×H175

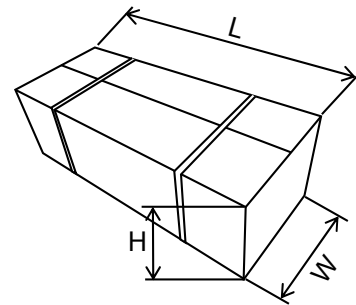
Packaging:Tube



Tube



Tube Inner Box



Tube Outer Box



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2. The graphs shown in this datasheet are representing typical data only and do not show guaranteed values.
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