

**Description**

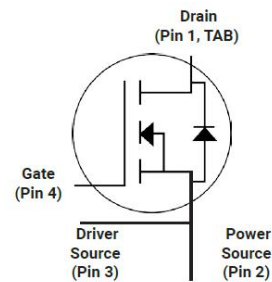
Silicon Carbide (SiC) MOSFET use a completely new technology that provide superior switching performance and higher reliability compared to Silicon. In addition, the low ON resistance and compact chip size ensure low capacitance and gate charge. Consequently, system benefits include highest efficiency, 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
JX4S0080120M	JX4S0080120M	TO-247	Tube



**Absolute Maximum Ratings(Tc=25 )**

V <sub>DS</sub>	Drain-Source Voltage	1200	V
I <sub>D</sub>	Drain Current(continuous)at Tc=25	30	A
I <sub>D</sub>	Drain Current(continuous)at Tc=100	20	A
I <sub>DM</sub>	Drain Current (pulsed)	90	A
V <sub>GS</sub>	Gate-Source Voltage Operation	-10/+20	V
P <sub>D</sub>	Power Dissipation T <sub>c</sub> = 25 C	208	W
T <sub>J</sub> , T <sub>stg</sub>	Junction and Storage Temperature Range	-55 to +150	

**Electrical Characteristics(T<sub>J</sub> = 25 unless otherwise specified)**

**Typical Performance-Static**

BV <sub>DS</sub>	Drain-source Breakdown Voltage	I <sub>D</sub> =250uA, V <sub>GS</sub> =0V	1200			V
I <sub>DSS</sub>	Zero Gate Voltage Drain Current	V <sub>DS</sub> =1200V, V <sub>GS</sub> =0V, T <sub>J</sub> =25 C			100	uA
I <sub>GSS</sub>	Gate-body Leakage Current	V <sub>DS</sub> =0V ; V <sub>GS</sub> =-10 to 20V			250	nA
V <sub>GS(th)</sub>	Gate Threshold Voltage	V <sub>DS</sub> = V <sub>GS</sub> , I <sub>D</sub> =5mA	2	3	4	V
R <sub>DS(on)</sub>	Static Drain-source On Resistance	V <sub>GS</sub> =20V, I <sub>D</sub> =30A		80	100	m
R <sub>G</sub>	Gate Resistance	V <sub>GS</sub> =0V, f=1MH		5		

**Typical Performance-Dynamic**

C <sub>iss</sub>	Input Capacitance	V <sub>DS</sub> =800V, f=1MHz, V <sub>GS</sub> =0V	1290		pF
C <sub>oss</sub>	Output Capacitance		130		pF
C <sub>rss</sub>	Reverse Transfer Capacitance		6.3		pF
Q <sub>g</sub>	Total Gate Charge	V <sub>DS</sub> =800V, I <sub>D</sub> =20A, V <sub>GS</sub> =0 20V	106		nC
Q <sub>gs</sub>	Gate-source Charge		18		nC
Q <sub>gd</sub>	Gate-Drain Charge		38		nC
t <sub>d(on)</sub>	Turn-on Delay Time	V <sub>DD</sub> =800V, I <sub>D</sub> =30A, V <sub>GS</sub> =-0V 20V, R <sub>G</sub> =0 ,	20		ns
t <sub>r</sub>	Rise Time		25		ns
t <sub>d(off)</sub>	Turn-off Delay Time		46		ns
t <sub>f</sub>	Fall Time		22		ns

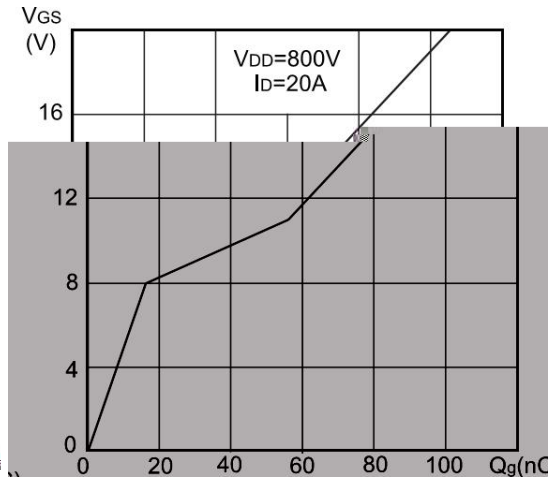
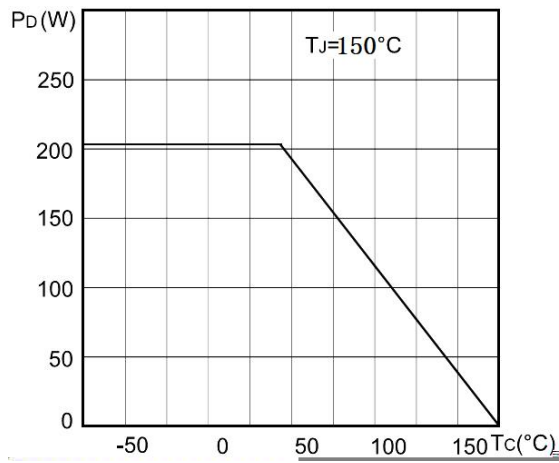
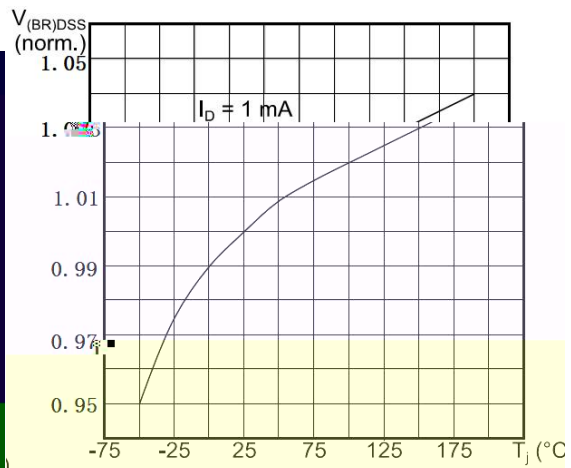
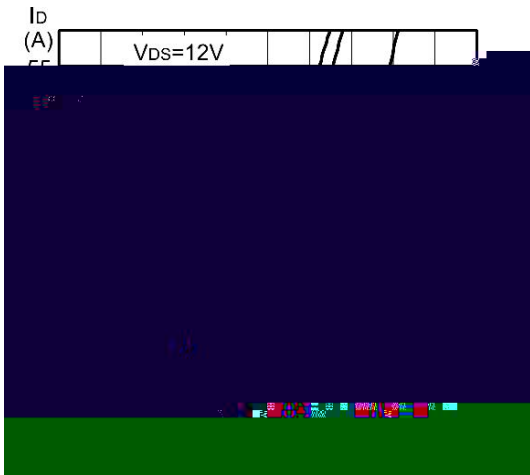
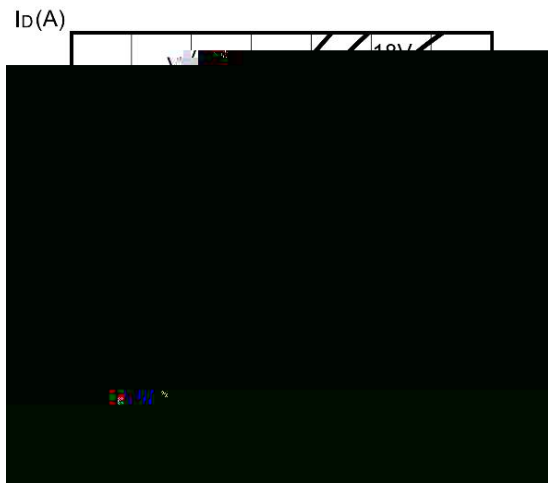
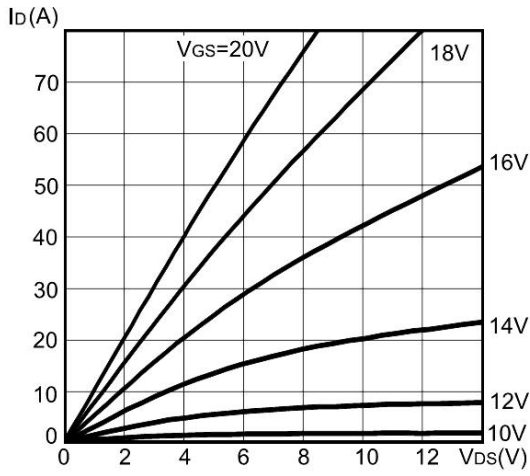
**Typical Performance-Reverse Diode**

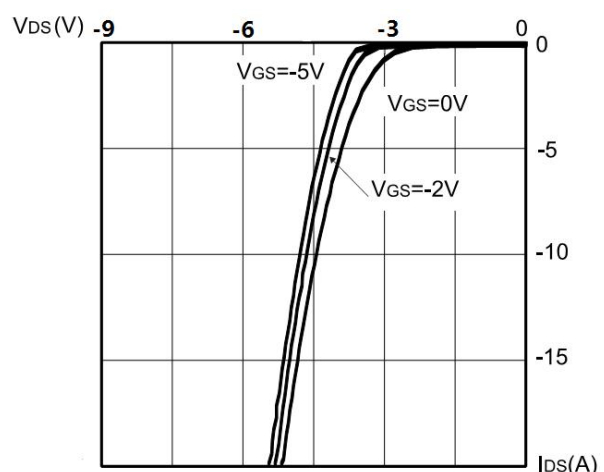
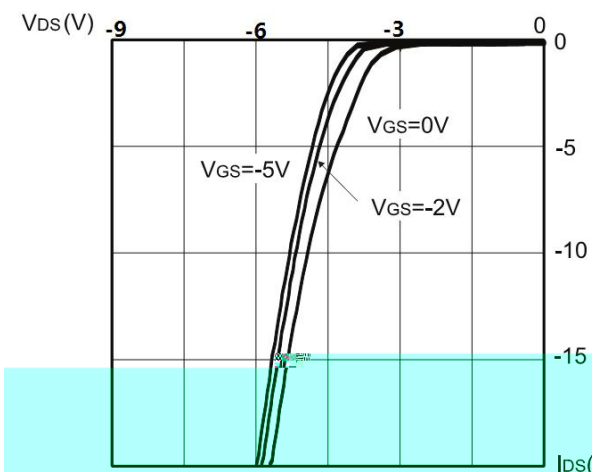
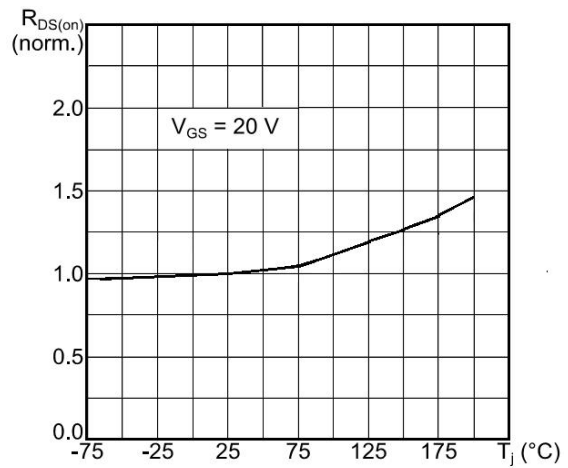
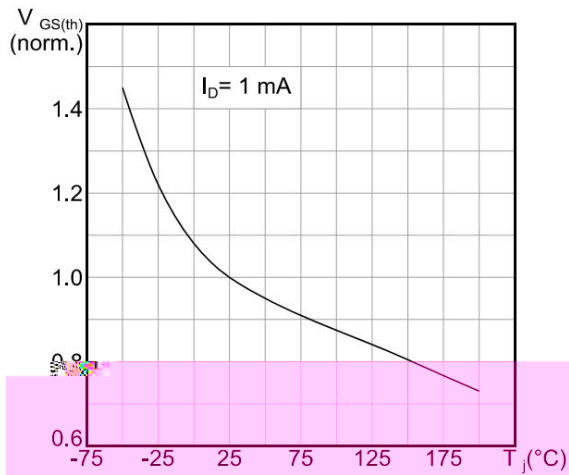
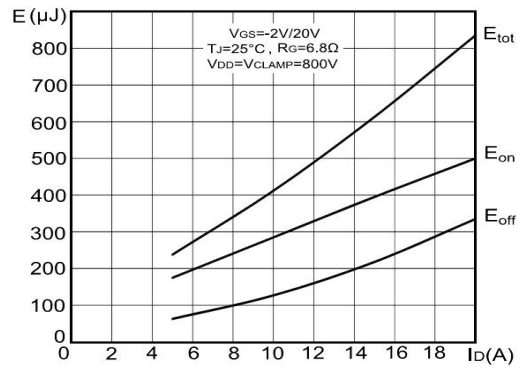
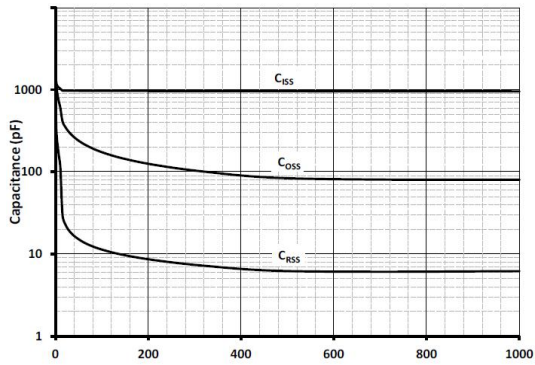
Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
$V_{FSD}$	Forward Voltage	$V_{GS}=0V, I_F=30A, T_J=25\text{ C}$	3		6	V
		$V_{GS}=0V, I_F=30A, T_J=150\text{ C}$	3		6	V
$t_{rr}$	Reverse Recovery Time	$V_{GS}=0\text{ V}, I_F=30\text{ A},$ $V_R=800\text{ V},$ $d/d\ 100\text{ A/ s}$		36		ns
$Q_{rr}$	Reverse Recovery Charge			108		nC
$I_{rrm}$	Peak Reverse Recovery Current			5		A

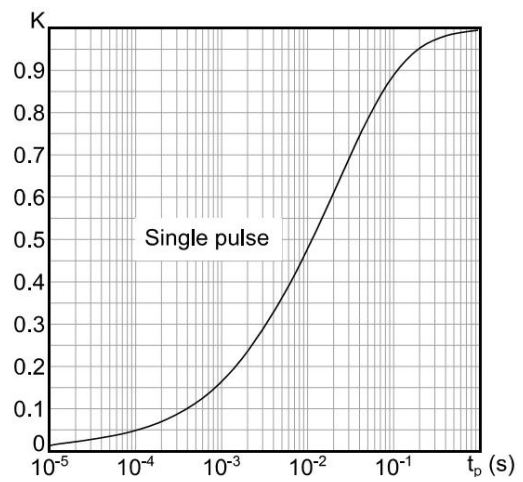
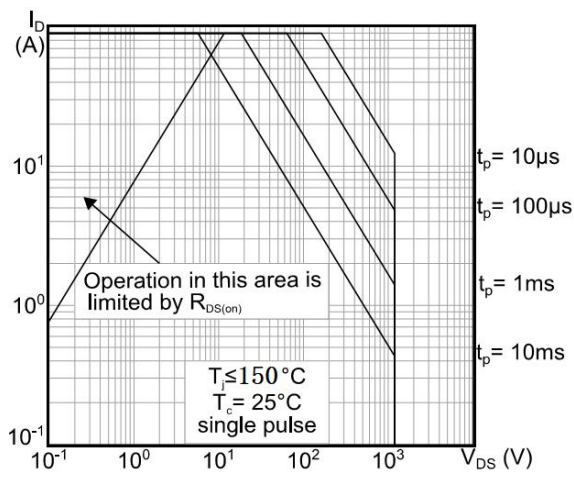
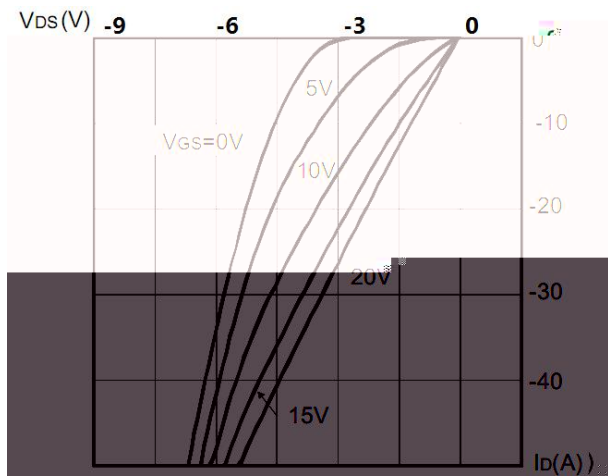
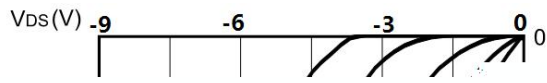
Symbol	Parameter	Value.	Unit
$R_{JC}$	Thermal Resistance, Junction-to-Case	0.6	C/W
$R_{JA}$	Thermal Resistance, Junction-to-Air	40	C/W

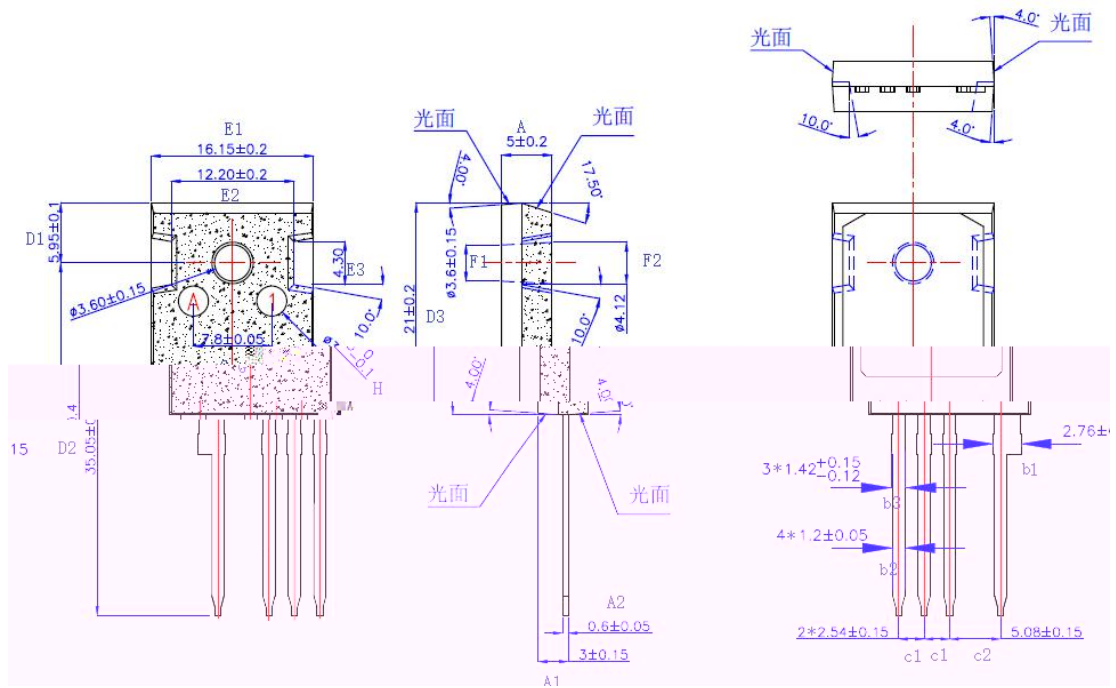
The values are based on the junction-to case thermal impedance which is measured with the device mounted to a large heat sink assuming maximum junction temperature of  $T_J(\text{max})=150$

Electrical Characteristics









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	F1	16.15	16.25
A3	7.8	8.2	F2	12.20	12.30
A4	16.15	16.25	F3	4.30	4.40
A5	12.20	12.30	H	1.4	1.5
A6	3.60	3.70			
A7	3.8	3.9			
A8	4.12	4.22			
A9	5.08	5.18			
A10	2.54	2.64			
A11	1.42	1.52			
A12	1.2	1.3			
A13	1.42	1.52			
A14	1.2	1.3			
A15	1.42	1.52			
A16	1.2	1.3			
A17	1.42	1.52			
A18	1.2	1.3			