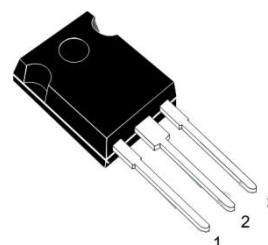


**Description**

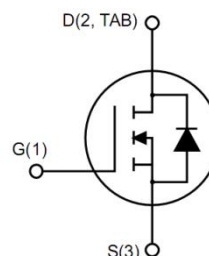
Silicon Carbide (SiC) MOSFET use a completely new technology that provide superior switching performance and higher reliability compared to Silicon. In addition, the low ON resistance and compact chip size ensure low capacitance and gate charge. Consequently, system benefits include highest efficiency, 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
JX3S0080120M	JX3S0080120M	TO-247	Tube

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

$V_{DS}$	Drain-Source Voltage	1200	V
$I_D$	Drain Current(continuous)at Tc=25	30	A
$I_D$	Drain Current(continuous)at Tc=100	20	A
$I_{DM}$	Drain Current (pulsed)	90	A
$V_{GS}$	Gate-Source Voltage Operation	-10/+20	V
$P_D$	Power Dissipation T <sub>c</sub> = 25°C	208	W
T <sub>J</sub> , Tstg	Junction and Storage Temperature Range	-55 to +150	

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

$BV_{DS}$	Drain-source Breakdown Voltage	$I_D=250\mu A, V_{GS}=0V$	1200			V
$I_{DSS}$	Zero Gate Voltage Drain Current	$V_{DS}=1200V, V_{GS}=0V, T_J=25\text{ C}$			100	$\mu A$
$I_{GSS}$	Gate-body Leakage Current	$V_{DS}=0V; V_{GS}=-10\text{ to }20V$			250	nA
$V_{GS(th)}$	Gate Threshold Voltage	$V_{DS}=V_{GS}, I_D=5mA$	2	3	4	V
$R_{DS(on)}$	Static Drain-source On Resistance	$V_{GS}=20V, I_D=30A$		80	100	m $\Omega$
$R_G$	Gate Resistance	$V_{GS}=0V, f=1MHz$		5		

**Typical Performance-Dynamic**

$C_{iss}$	Input Capacitance	$V_{DS}=800V, f=1MHz, V_{GS}=0V$	1290		pF
$C_{oss}$	Output Capacitance		130		pF
$C_{riss}$	Reverse Transfer Capacitance		6.3		pF
$Q_g$	Total Gate Charge	$V_{DS}=800V, I_D=20A, V_{GS}=0\sim 20V$	106		nC
$Q_{gs}$	Gate-source Charge		18		nC
$Q_{gd}$	Gate-Drain Charge		38		nC
$t_{d(on)}$	Turn-on Delay Time	$V_{DD}=800V, I_D=30A, V_{GS}=-0V\sim 20V, R_G=0\Omega,$	20		ns
$t_r$	Rise Time		25		ns
$t_{d(off)}$	Turn-off Delay Time		46		ns
$t_f$	Fall Time		22		ns

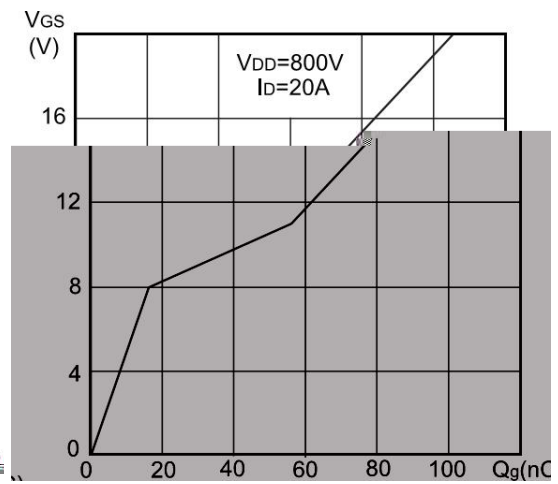
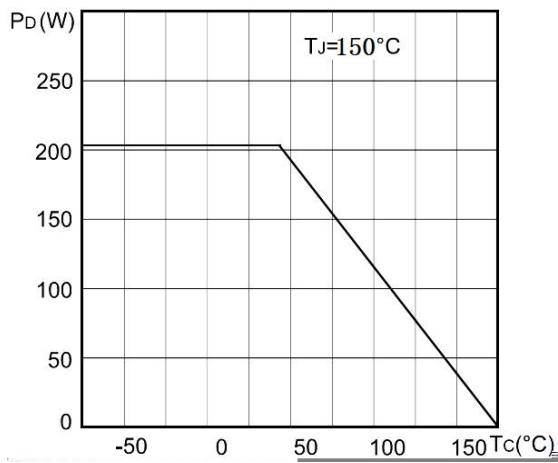
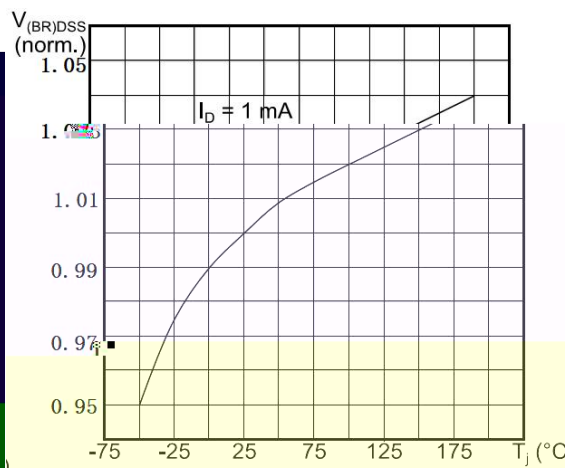
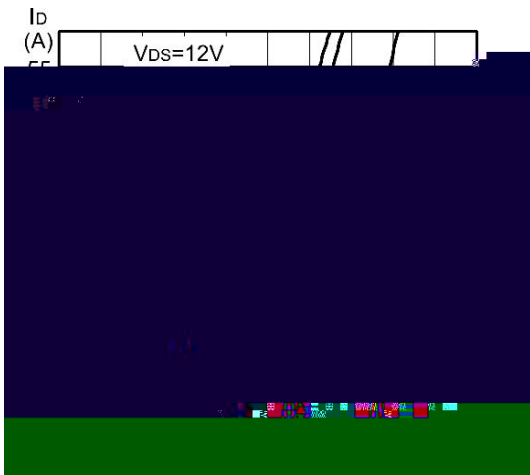
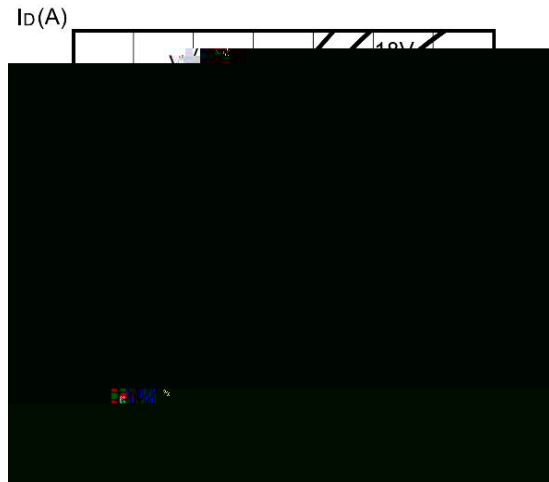
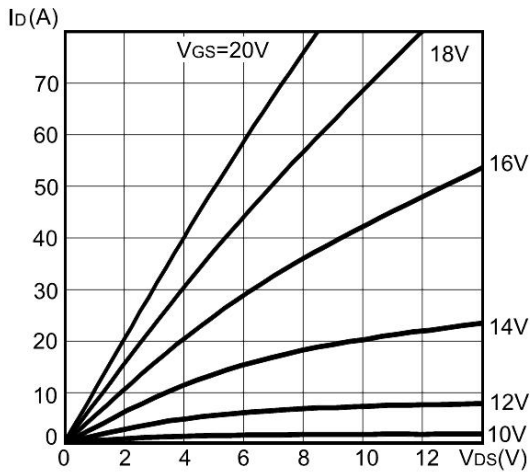
**Typical Performance-Reverse Diode**

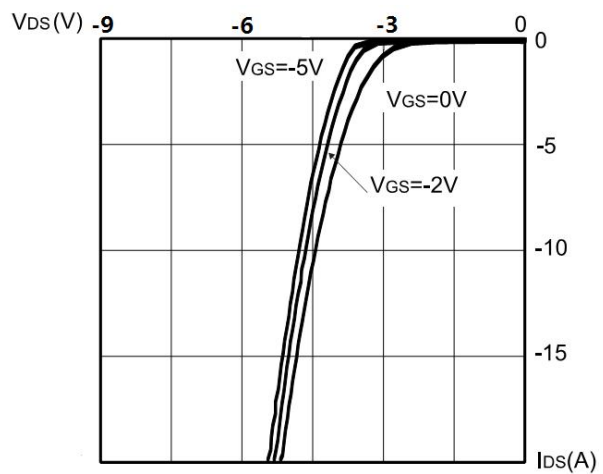
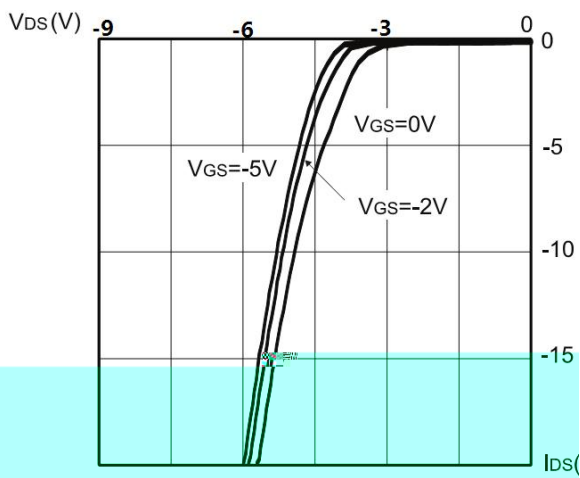
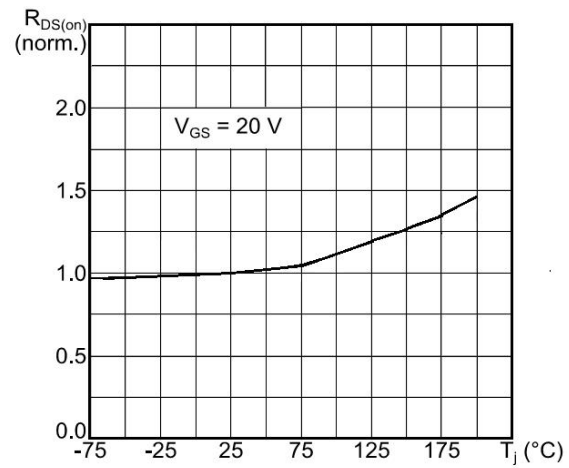
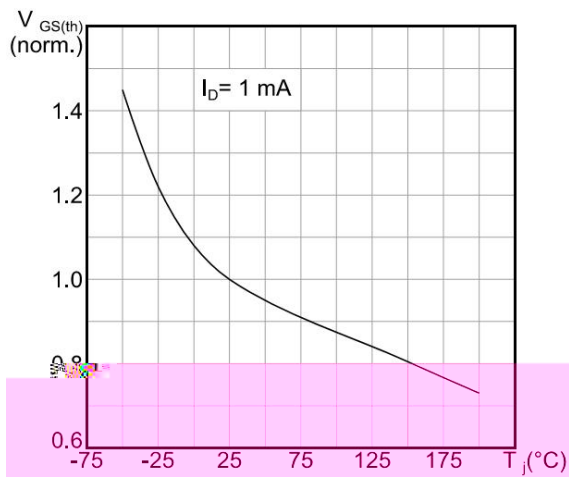
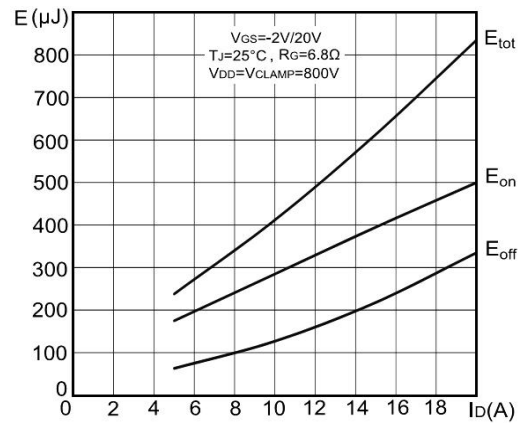
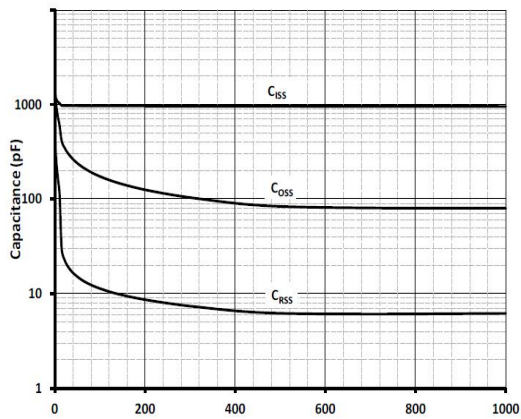
Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
V <sub>FSD</sub>	Forward Voltage	V <sub>GS</sub> =0V, I <sub>F</sub> =30A, T <sub>J</sub> =25 C	3		6	V
		V <sub>GS</sub> =0V, I <sub>F</sub> =30A, T <sub>J</sub> =150 C	3		6	V
t <sub>rr</sub>	Reverse Recovery Time	V <sub>GS</sub> =0 V, I <sub>F</sub> =30 A, V <sub>R</sub> =800 V, d/d 100 A/μs		36		ns
Q <sub>rr</sub>	Reverse Recovery Charge			108		nC
I <sub>rm</sub>	Peak Reverse Recovery Current			5		A

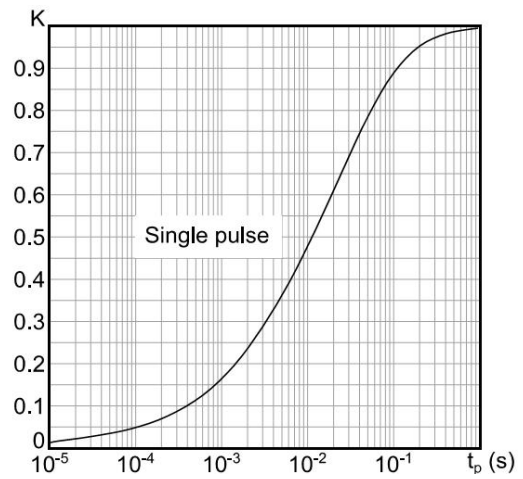
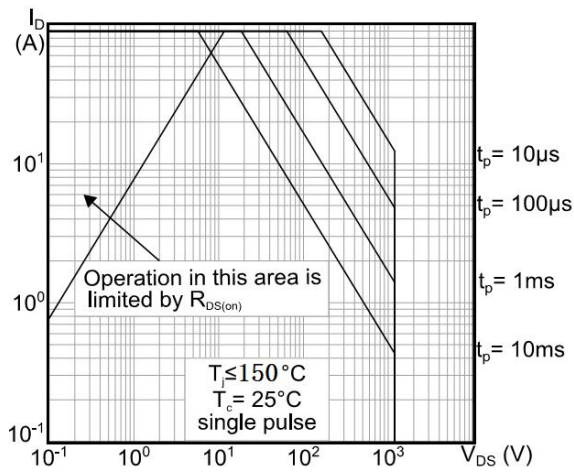
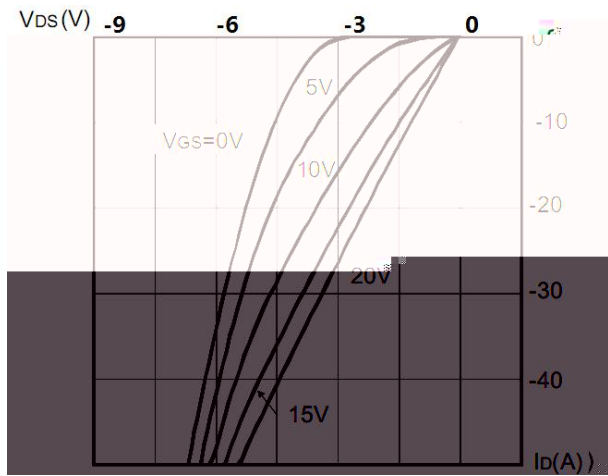
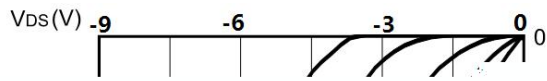
Symbol	Parameter	Value.	Unit
R <sub>JC</sub>	Thermal Resistance, Junction-to-Case	0.6	C/W
R <sub>JA</sub>	Thermal Resistance, Junction-to-Air	40	C/W

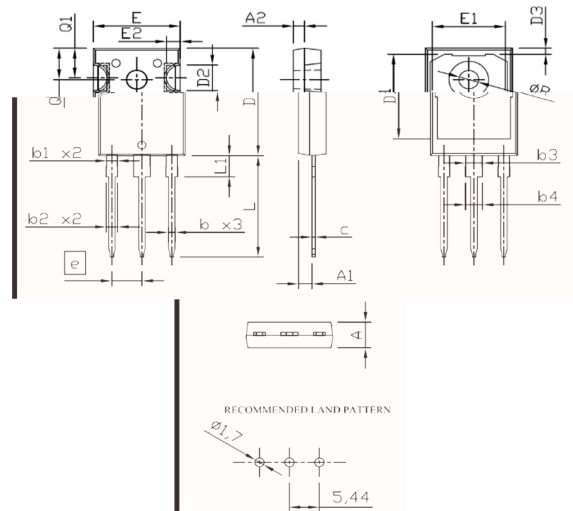
The values are based on the junction-to case thermal impedance which is measured with the device mounted to a large heat sink assuming maximum junction temperature of T<sub>J</sub>(max)=150

Electrical Characteristics









SYMBDLS	DIMENSIONS IN MILLIMETERS			DIMENSIONS IN INCHES		
	MIN	NOM	MAX	MIN	NOM	MAX
A	4.90	5.00	5.10	0.193	0.197	0.201
A1	2.31	2.42	2.52	0.091	0.095	0.099
A2	1.90	2.00	2.10	0.075	0.079	0.083
b	1.16	1.22	1.27	0.046	0.048	0.050
b1	1.96	2.02	2.07	0.078	0.080	0.081
b2	2.00	2.10	2.20	0.079	0.083	0.087
b3	2.96	3.02	3.07	0.117	0.119	0.121
b4	3.00	3.10	3.20	0.118	0.122	0.126
C	0.59	0.62	0.66	0.023	0.024	0.026
D	20.90	21.00	21.10	0.823	0.827	0.831
D1	16.25	16.55	16.85	0.640	0.652	0.663
D2	5.00 TYP			0.197 TYP		
D3	1.05	1.20	1.35	0.041	0.047	0.053
e	5.44 BSC			0.214 BSC		
E	15.70	15.80	15.90	0.618	0.622	0.626
E1	13.06	13.26	13.50	0.514	0.522	0.530
E2	2.50 TYP			0.098 TYP		
L	19.72	19.92	20.12	0.776	0.784	0.792
L1	—	—	4.30	—	—	0.169
Q	6.15 BSC			0.242BSC		
Q1	5.60	5.80	6.00	0.220	0.228	0.236
ØP	3.55	3.60	3.70	0.140	0.142	0.146