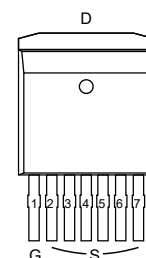
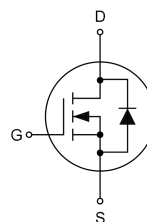


1. Product Information

Features

- 1700V, 1Ω, 7A, N-Channel SiC MOS
- Low loss, fast switching speeds with low R_G
- Robust body diode and low Q_{rr}
- Easy to parallel and simple to drive
- Fast reverse recovery



TO-263-7L Plus

Applications

- Solar inverters
- Switch mode power supplies

Package Marking and Ordering Information

Product Name	Package	Marking	Packing	Quantity (pcs)
KJSC170R1D7S	TO-263-7L Plus	KJSC170R1D7S	Tape & Reel	800

2. Absolute Maximum Ratings (T_C=25°C unless otherwise noted)

Symbol	Parameter	Values	Unit
V _{DS}	Drain-Source Voltage	1700	V
I _D	Continuous Drain Current, T _C =25°C	7	A
	Continuous Drain Current, T _C =100°C	4.9	A
I _{DM}	Peak Drain Current, Pulse width t _p limited by T _{jmax}	14	A
V _{GS, max}	Gate-Source Voltage (Maximum)	-10/+25	V
V _{GS, OP}	Gate-Source Voltage (Recommended Operating)	-5/+20	V
P _D	Power Dissipation	107	W
E _{AS}	Single Pulsed Avalanche Energy V _{DS} =50 V, L=10 mH, R _G =25 Ω	80	mJ
T _J , T _{STG}	Operating Junction and Storage Temperature Range	-55 to 175	°C
R _{θJA}	Thermal Resistance, Junction to Ambient	65	°C/W
R _{θJC}	Thermal Resistance, Junction to Case	1.4	°C/W

3. Electrical Characteristics (T_J=25°C, unless otherwise noted)

Symbol	Parameter	Test Conditions	Min	Type	Max	Unit
Static Characteristics						
BV _{DSS}	Drain-Source Breakdown Voltage	V _{GS} =0 V, I _D =250 μA	1700	-	-	V
I _{DSS}	Zero Gate Voltage Drain Current	V _{DS} =750 V, V _{GS} =0 V	-	-	100	μA
I _{GSS}	Gate-Source Leakage Current	V _{DS} =0 V, V _{GS} =-5 to 15 V,	-	-	±250	nA
V _{GS(th)}	Gate Threshold Voltage	V _{DS} =V _{GS} , I _D =30 mA	2	-	4	V
R _{DS(ON)}	Drain-Source On-State Resistance	V _{GS} =20 V, I _D =2.5 A	-	0.8	1	Ω
		V _{GS} =20 V, I _D =2.5 A, T _J =175°C	-	1.2	-	Ω
Dynamic Characteristics						
C _{iss}	Input Capacitance	V _{DS} =800 V, V _{GS} =0 V, f=1 MHz	-	185	-	pF
C _{oss}	Output Capacitance		-	11	-	pF
C _{rss}	Reverse Transfer Capacitance		-	3	-	pF
E _{oss}	Coss Stored Energy		-	7	-	μJ
R _G	Gate Resistance	f=1 MHz	-	4	-	Ω
Switching Characteristics						
Q _g	Total Gate Charge	V _{DS} =800 V, I _D =2.5 A, V _{GS} =-5/+20 V	-	22	-	nC
Q _{gs}	Gate-Source Charge		-	3.5	-	nC
Q _{gd}	Gate-Drain Charge		-	12	-	nC
t _{d(on)}	Turn-on Delay Time	V _{DS} =1000 V, I _D =2.5 A, V _{GS} =-5/+20 V, R _G =10 Ω, L=100 μH	-	12	-	ns
t _r	Turn-on Rise Time		-	14	-	ns
t _{d(off)}	Turn-off Delay Time		-	15	-	ns
t _f	Turn-off Fall Time		-	12	-	ns
E _{ON}	Turn-on Energy		-	130	-	mJ
E _{OFF}	Turn-off Fall Time Energy		-	62	-	mJ
Source-Drain Diode Characteristics						
V _{SD}	Diode Forward Voltage	V _{GS} =0 V, I _S =1 A	-	3.5	-	V
T _{rr}	Reverse Recovery Time	V _R =800 V, I _F =2.5 A, di _F /dt=1000 A/μs	-	8	-	ns
I _{rrm}	Peak Reverse Recovery Current		-	3.6	-	A
Q _{rr}	Reverse Recovery Charge		-	19	-	nC

4. Typical Characteristics

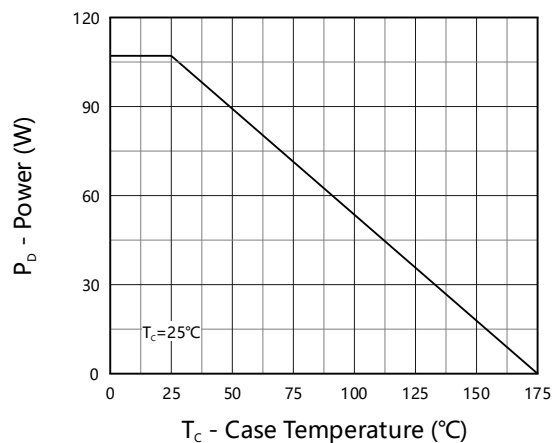


Fig 1. Power Capability

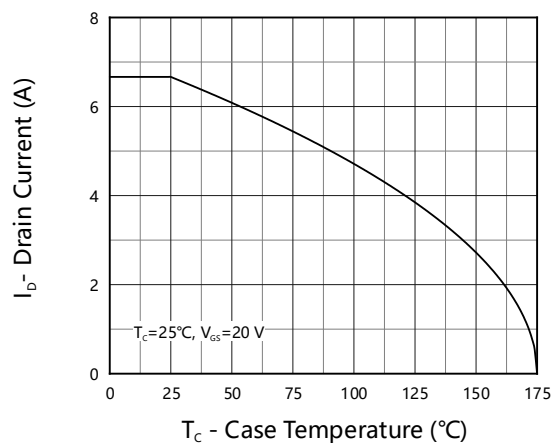


Fig 2. Current Capability

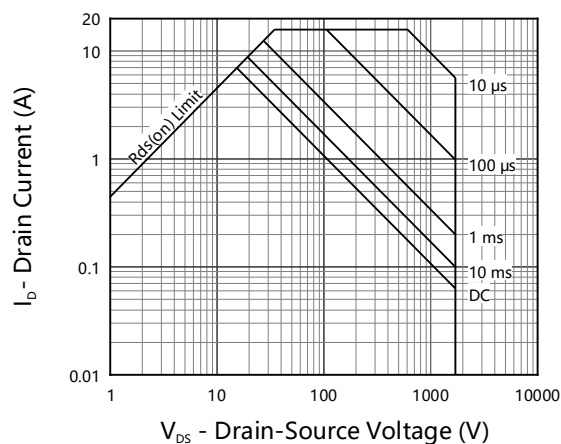


Fig 3. Safe Operation Area

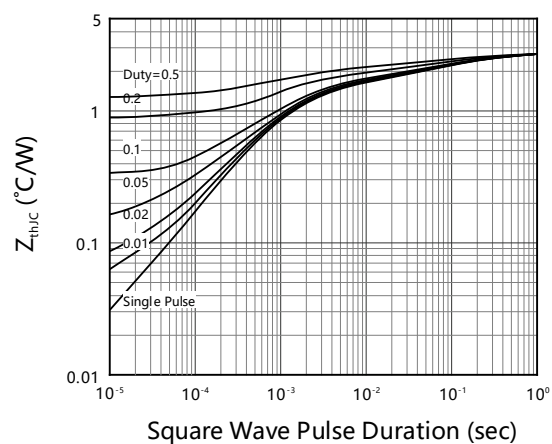


Fig 4. Transient Thermal Impedance

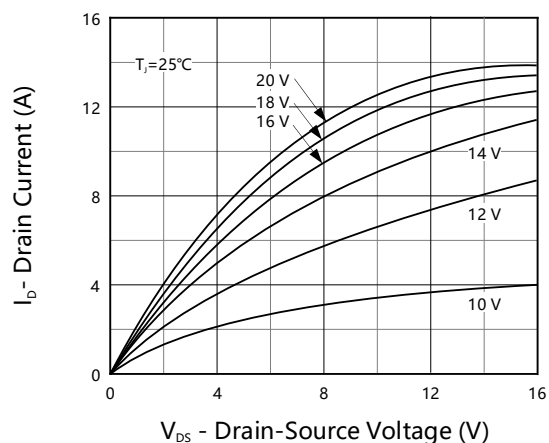


Fig 5. Output Characteristics, $T_J=25^\circ\text{C}$

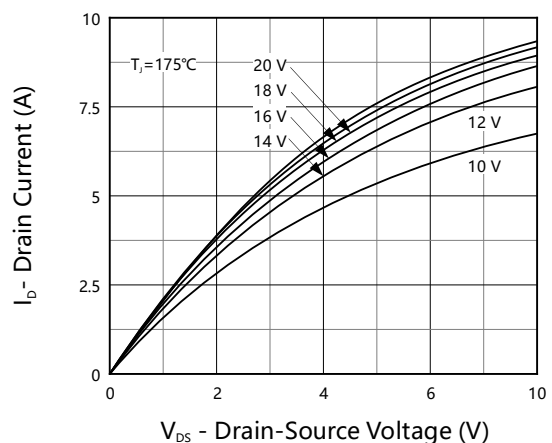


Fig 6. Output Characteristics, $T_J=175^\circ\text{C}$

4. Typical Characteristics(cont.)

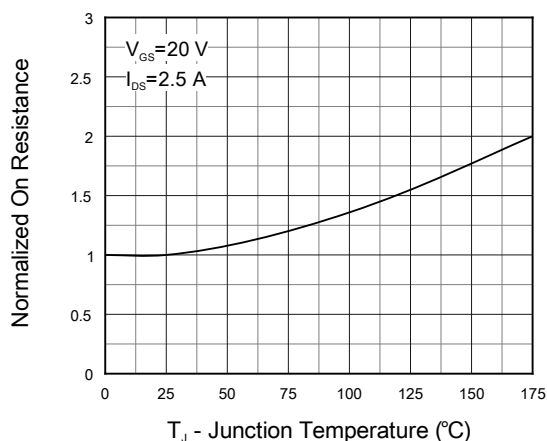


Fig 7. Normalized On Resistance

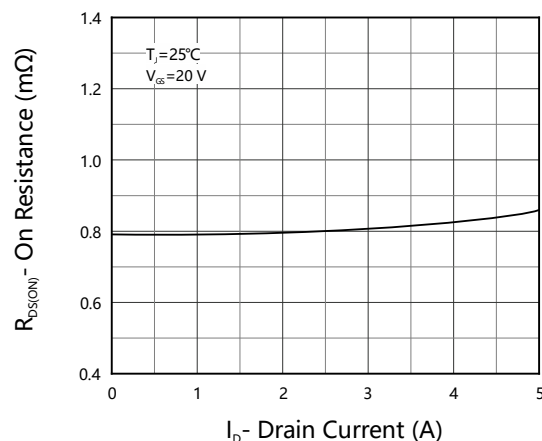


Fig 8. On Resistance vs. I_D

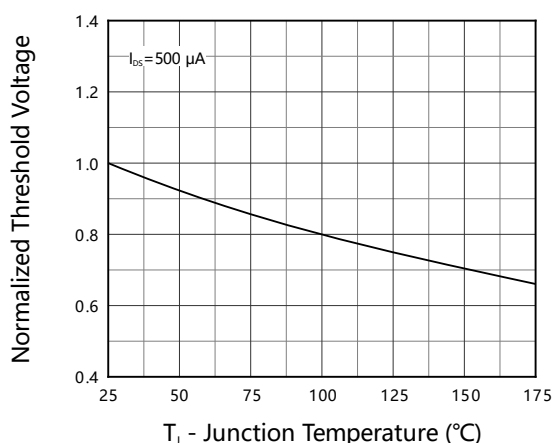


Fig 9. Normalized Threshold Voltage

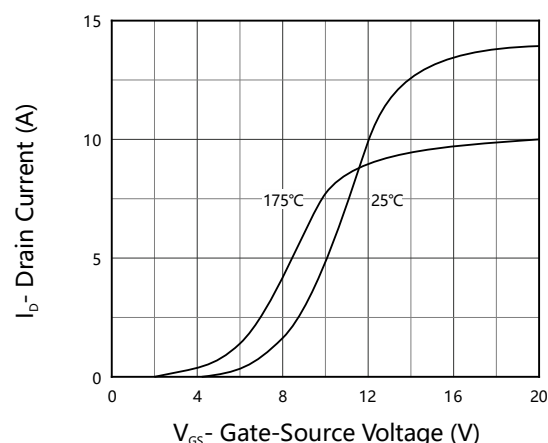


Fig 10. Transfer Characteristics

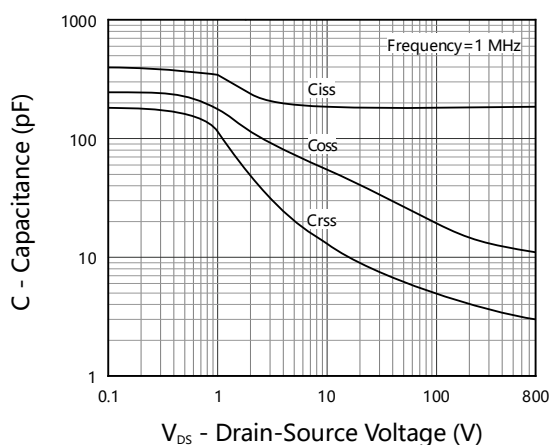


Fig 11. Capacitance

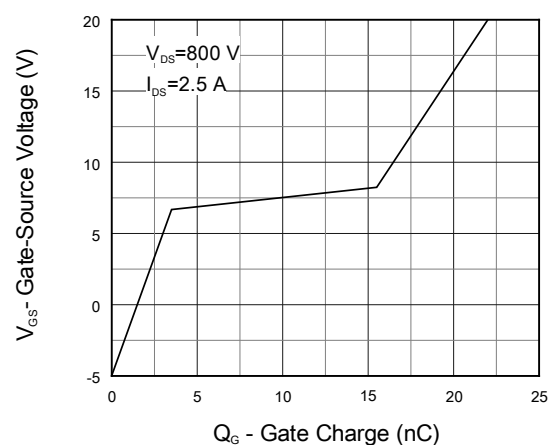
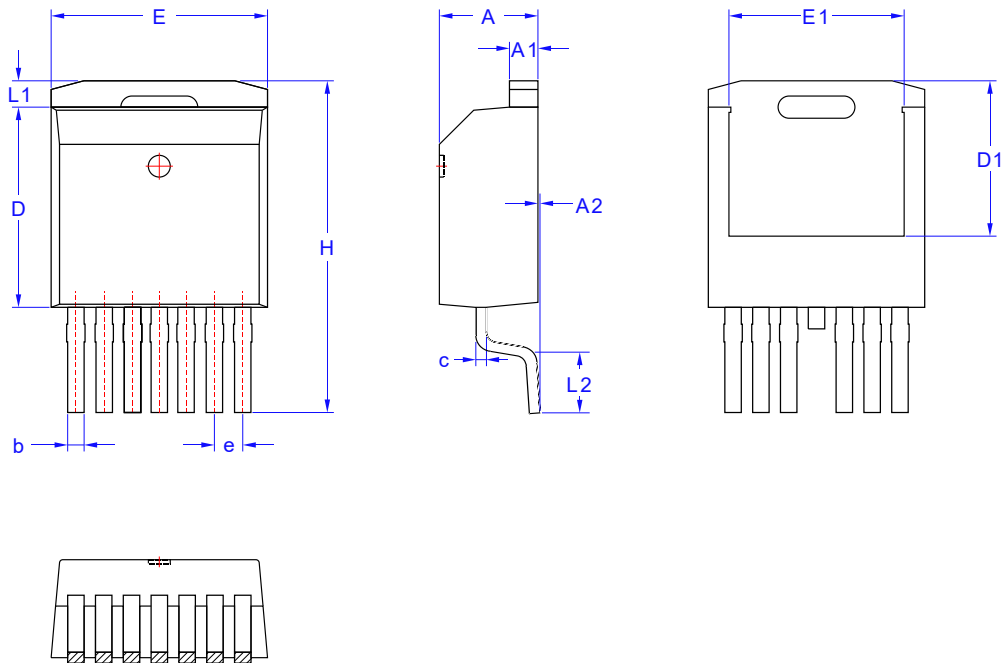


Fig 12. Gate Charge

5. Package Mechanical Data

TO-263-7 Plus Package



Symbol	Dimensions in Millimeters		
	MIN	NOM	MAX
A	4.30	4.43	4.56
A1	1.20	1.30	1.40
A2	2.45	2.60	2.75
A3	0.00	0.13	0.25
b	0.50	0.60	0.70
b1	0.60	0.70	0.90
c	0.45	0.50	0.60
D	9.08	9.08	9.08
D1	4.65	4.80	4.95
E	10.08	10.18	10.28
E1	6.82	7.22	7.62
e		1.27 BSC	
H	15.00	15.50	16.00
L1	0.98	1.20	1.42
L2	1.90	2.20	2.50
θ	3°	5°	7°