



Features

- 1) Low on-resistance
- 2) Fast switching speed
- 3) Fast reverse recovery
- 4) Easy to parallel
- 5) Simple to drive
- 6) Pb-free lead plating ; RoHS compliant

Parameter	Rating	Units
V_{DS}	1200	V
I_D @ 25°C	167	A
$R_{DS(on)}$	13	m Ω

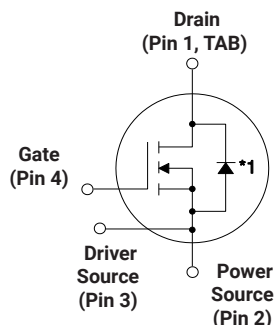


Applications

- Solar inverters
- DC/DC converters
- Switch mode power supplies
- Induction heating



TO-247-4
Package



- (1) Drain
- (2) Power Source
- (3) Driver Source
- (4) Gate

*1 Body Diode

SiC Power MOSFET

Maximum Rated Values ($T_c=25^\circ\text{C}$ unless otherwise noted)

Parameter	Symbol	Condition	Value	Unit
Drain-Source Voltage	V_{DSmax}	$V_{GS}=0V, I_D=100\mu A$	1200	V
Gate-Source Voltage	V_{GSmax}	Absolute maximum values	-10/+22	V
Gate-Source Voltage	V_{GSop}	Recommended operational values	-5/+18	V
Continuous Drain Current	I_D	$V_{GS}=18V, T_c=25^\circ\text{C}$	167	A
		$V_{GS}=18V, T_c=100^\circ\text{C}$	118	
Pulsed Drain Current	$I_{D(pulse)}$	Pulse width t_p limited by T_{jmax}	TBD	A
Power Dissipation	P_D	$T_c=25^\circ\text{C}, T_J=175^\circ\text{C}$	555	W
Operating Junction Temperature	$T_{vj, op}$		-55~175	$^\circ\text{C}$
Storage Temperature Range	T_{stg}		-55~175	$^\circ\text{C}$



Electrical Characteristics ($T_c=25^\circ\text{C}$ unless otherwise noted)

Parameter	Symbol	Condition		Value			Unit
				Min	Typ.	Max	
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	$V_{GS}=0V, I_D=100\mu A$		1200			V
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=20mA$	$T_{vj}=25^{\circ}C$		2.9		V
			$T_{vj}=175^{\circ}C$		2.1		
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS}=1200V, V_{GS}=0V$			1	100	μA
Gate-Source Leakage Current	I_{GSS}	$V_{GS}=18V, V_{DS}=0V$			1	100	nA
Drain-Source On-State Resistance	$R_{DS(on)}$	$V_{GS}=18V, I_D=75A$	$T_{vj}=25^{\circ}C$		13		m Ω
			$T_{vj}=175^{\circ}C$		20		
Transconductance	g_{fs}	$V_{DS}=20V, I_{DS}=75A$	$T_{vj}=25^{\circ}C$		TBD		S
			$T_{vj}=175^{\circ}C$		TBD		
Input Capacitance	C_{iss}	$V_{GS}=0V$ $V_{DS}=1200V$ $f=100KHz$ $V_{AC}=25mV$			3815		pF
Output Capacitance	C_{oss}				239		
Reverse Transfer Capacitance	C_{rss}				29		
C_{oss} Stored Energy	E_{oss}				TBD		μJ
Turn-On Switching Energy	E_{ON}	$V_{DS}=800V, V_{GS}=-5/18V$ $I_D=75A, R_{G(ext)}=2.5\Omega,$ $L=250\mu H$	$T_{vj}=25^{\circ}C$		TBD		μJ
			$T_{vj}=175^{\circ}C$		TBD		
Turn Off Switching Energy	E_{OFF}		$T_{vj}=25^{\circ}C$		TBD		
			$T_{vj}=175^{\circ}C$		TBD		
Turn-On Delay Time	$t_{d(on)}$	$V_{DS}=800V, V_{GS}=-5/18V$ $I_D=75A, R_{G(ext)}=2.5\Omega,$ $T_J=25^{\circ}C, L=250\mu H$ Timing relative to V_{DS}			TBD		ns
Rise Time	t_r				TBD		
Turn-Off Delay Time	$t_{d(off)}$				TBD		
Fall Time	t_f				TBD		
Internal Gate Resistance	$R_{G(int)}$	$f=1MHz, V_{AC}=25mV$			TBD		Ω
Gate to Source Charge	Q_{gs}	$V_{DS}=800V, V_{GS}=-5/18V$ $I_D=75A$			46		nC
Gate to Drain Charge	Q_{gd}				100		
Total Gate Charge	Q_g				216		



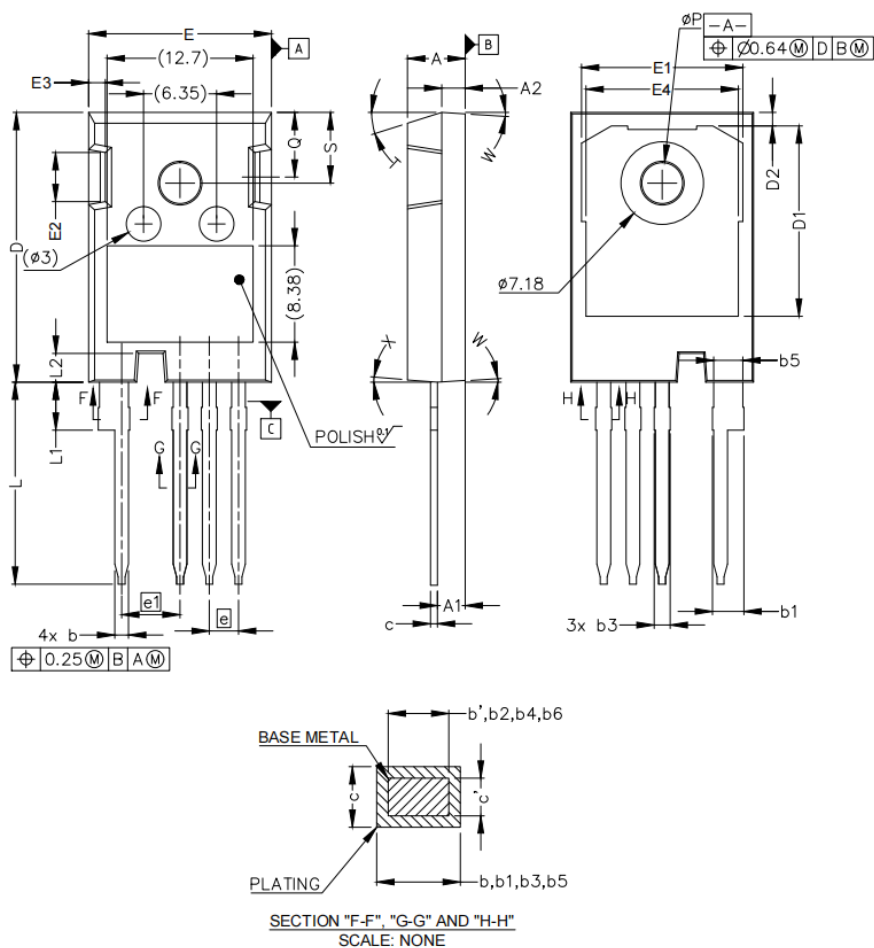
Body Diode Characteristics (T_{vj}=25°C unless otherwise noted)

Parameter	Symbol	Condition		Value			Unit
				Min	Typ.	Max	
Diode Forward Voltage	V _{SD}	V _{GS} =-5V, I _{SD} =37.5A	T _{vj} =25°C		4.7		V
			T _{vj} =175°C		4.1		
Continuous Diode Forward Current	I _S	V _{GS} =-5V, T _C =25°C				TBD	A
Diode Pulse Current	I _{S(pulse)}	V _{GS} =-5V, Pulse width t _p limited by T _{jmax}				TBD	A
Reverse Recovery Time	t _{rr}	V _{GS} =-5V I _{SD} =37.5A R _{G(ext)} =2.5Ω T _j =175°C V _R =800V			TBD		ns
Reverse Recovery Charge	Q _{rr}				TBD		nC
Peak Reverse Recovery Current	I _{rrm}				TBD		A

Thermal Characteristics

Parameter	Symbol	Condition	Value			Unit
			Min	Typ.	Max	
Thermal Resistance: Junction to Case	R _{th(J-C)}			0.27	0.37	°C/W

Outline Drawing



SYMBOL	MILLIMETERS	
	MIN	MAX
A	4.83	5.21
A1	2.29	2.54
A2	1.91	2.16
b'	1.07	1.28
b	1.07	1.33
b1	2.39	2.94
b2	2.39	2.84
b3	1.07	1.60
b4	1.07	1.50
b5	2.39	2.69
b6	2.39	2.64
c'	0.55	0.65
c	0.55	0.68
D	23.30	23.60
D1	16.25	17.65
D2	0.95	1.25
E	15.75	16.13
E1	13.10	14.15
E2	3.68	5.10
E3	1.00	1.90
E4	12.38	13.43
e	2.54 BSC	
e1	5.08 BSC	
N	4	
L	17.31	17.82
L1	3.97	4.37
L2	2.35	2.65
øP	3.51	3.65
Q	5.49	6.00
S	6.04	6.30
T	17.5° REF.	
W	3.5 ° REF.	
X	4° REF.	

Revision History

Version	Date	Description
1	2023-12-04	