Features

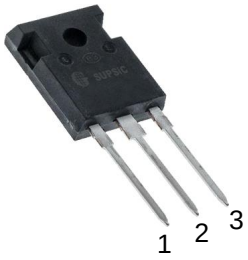
1) Low on-resistance
2) Fast switching speed
3) Fast reverse recovery
4) Easy to parallel
5) Simple to drive
6) Pb-free lead plating ; RoHS compliant

Parameter	Rating	Units
V_{DS}	**900**	V
$I_{D\ @\ 25^{\circ}C}$	**37**	A
$R_{DS(on)}$	**65**	m Ω

RoHS compliant

Applications

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



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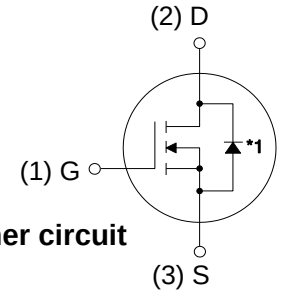
Package



Inner circuit

(1) Gate
(2) Drain
(3) Source

*1 Body Diode

Maximum Ratings (T_C = 25 ˚C unless otherwise specified)

Symbol	Parameter	Value	Unit	Test Conditions	Note
V_{DSmax}	Drain - Source Voltage	900	V	V_{GS} = 0 V, I_D = 100 μA	
V_{GSmax}	Gate - Source Voltage (dynamic)	-8/+19	V	AC (f >1 Hz)	
V_{GSop}	Gate - Source Voltage (static)	-4/+15	V	Static	
I_D	Continuous Drain Current	37	A	V_{GS} = 15 V, T_C = 25˚C	
		23		V_{GS} = 15 V, T_C = 100˚C	
$I_{D(pulse)}$	Pulsed Drain Current	90	A	Pulse width t_P limited by T_{jmax}	
E_{AS}	Avalanche energy, Single pulse	110	mJ	I_D = 22A, V_{DD} = 50V	
P_D	Power Dissipation	120	W	T_C=25˚C, T_J = 150 ˚C	
T_J , T_{stg}	Operating Junction and Storage Temperature	-55 to +150	˚C		
T_L	Solder Temperature	260	˚C	1.6mm (0.063") from case for 10s	
M_d	Mounting Torque	1 8.8	Nm lbf-in	M3 or 6-32 screw	

Note (1): When using MOSFET Body Diode V_{GSmax} = -4V/+19V
Note (2): MOSFET can also safely operate at 0/+15 V

Electrical Characteristics (T_C = 25˚C unless otherwise specified)

Symbol	Parameter	Min.	Typ.	Max.	Unit	Test Conditions	Note
$V_{(BR)DSS}$	Drain-Source Breakdown Voltage	900			V	V_{GS} = 0 V, I_D = 100 µA	
$V_{GS(th)}$	Gate Threshold Voltage	1.8	2.1	3.5	V	V_{DS} = V_{GS}, I_D = 5 mA	
			1.6		V	V_{DS} = V_{GS}, I_D = 5 mA, T_J = 150ºC	
I_{DSS}	Zero Gate Voltage Drain Current		1	100	µA	V_{DS} = 900 V, V_{GS} = 0 V	
I_{GSS}	Gate-Source Leakage Current		10	250	nA	V_{GS} = 15 V, V_{DS} = 0 V	
$R_{DS(on)}$	Drain-Source On-State Resistance		65	80	mΩ	V_{GS} = 15 V, I_D = 20 A	
			95			V_{GS} = 15 V, I_D = 20A, T_J = 150ºC	
g_{fs}	Transconductance		16		S	V_{DS}= 20 V, I_{DS}= 20 A	
			13			V_{DS}= 20 V, I_{DS}= 20 A, T_J = 150ºC	
C_{iss}	Input Capacitance		710		pF	V_{GS} = 0 V, V_{DS} = 400 V f = 1 MHz V_{AC} = 25 mV	
C_{oss}	Output Capacitance		66				
C_{rss}	Reverse Transfer Capacitance		5.0				
E_{oss}	C_{oss} Stored Energy		16		µJ		
E_{ON}	Turn-On Switching Energy (Body Diode FWD)		326		µJ	V_{DS} = 400 V, V_{GS} = -4 V/15 V, I_D = 20 A, $R_{G(ext)}$ = 2.5 Ω, L= 65.7 µH, T_J = 150ºC	
E_{OFF}	Turn Off Switching Energy (Body Diode FWD)		46				
$t_{d(on)}$	Turn-On Delay Time		47		ns	V_{DD} = 400 V, V_{GS} = -4 V/15 V I_D = 20 A, $R_{G(ext)}$ = 2.5 Ω, Timing relative to V_{DS} Inductive load	
t_r	Rise Time		13				
$t_{d(off)}$	Turn-Off Delay Time		20				
t_f	Fall Time		8				
$R_{G(int)}$	Internal Gate Resistance		3.5		Ω	f = 1 MHz, V_{AC} = 25 mV	
Q_{gs}	Gate to Source Charge		9		nC	V_{DS} = 400 V, V_{GS} = -4 V/15 V I_D = 20 A Per IEC60747-8-4 pg 21	
Q_{gd}	Gate to Drain Charge		13				
Q_g	Total Gate Charge		33				

Reverse Diode Characteristics (T_C = 25˚C unless otherwise specified)

Symbol	Parameter	Typ.	Max.	Unit	Test Conditions	Note
V_{SD}	Diode Forward Voltage	4.4		V	V_{GS} = -4 V, I_{SD} = 10 A	
		4.0		V	V_{GS} = -4 V, I_{SD} = 10 A, T_J = 150 °C	
I_S	Continuous Diode Forward Current		22	A	V_{GS} = -4 V	
$I_{S, pulse}$	Diode pulse Current		90	A	V_{GS} = -4 V, pulse width t_P limited by T_{jmax}	
t_{rr}	Reverse Recovery time	22		ns	V_{GS} = -4 V, I_{SD} = 20 A, V_R = 400 V dif/dt = 900 A/µs, T_J = 150 °C	
Q_{rr}	Reverse Recovery Charge	142		nC		
I_{rrm}	Peak Reverse Recovery Current	8		A		

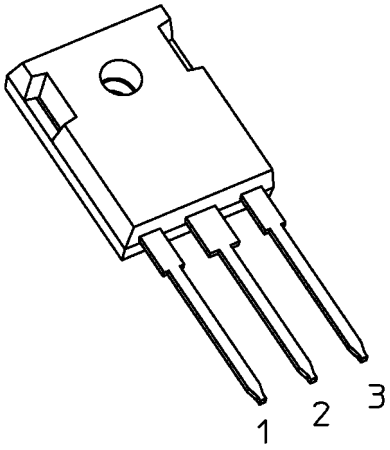
Thermal Characteristics

Symbol	Parameter	Max.	Unit	Test Conditions	Note
$R_{\theta JC}$	Thermal Resistance from Junction to Case	1.0	°C/W		
$R_{\theta JA}$	Thermal Resistance From Junction to Ambient	40			

Note (3): Turn-off and Turn-on switching energy and timing values measured using SiC MOSFET Body Diode

Package Dimensions

Unit: mm



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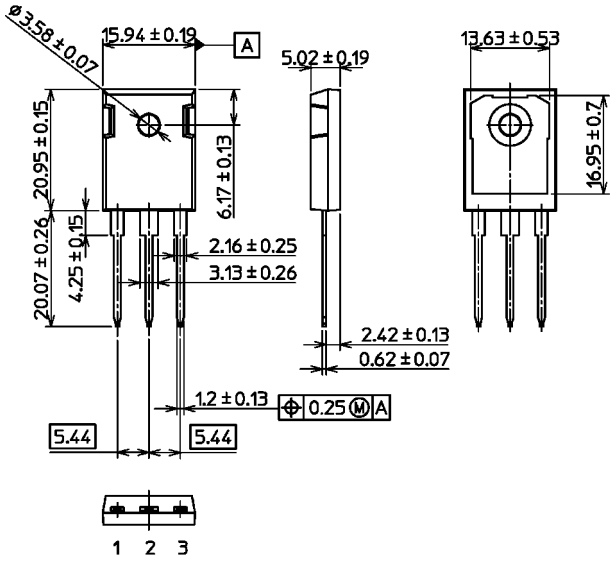
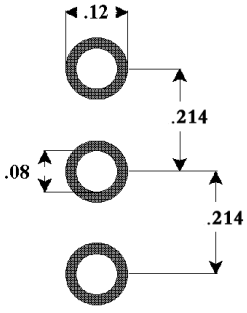


Recommended Solder Pad Layout



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