

• General Description

It combines advanced trench MOSFET technology with a low resistance package to provide extremely low $R_{DS(ON)}$.

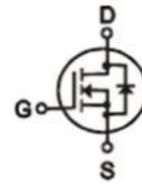
• Features

- Multi-Epi process SJ-FET
- Low $R_{DS(ON)}$ to minimize conduction loss
- Ultra Low Gate Charge
- 100% UIS and RG Tested

• Application

- SMPS 2nd Synchronous Rectifier
- Uninterruptible Power Supply (UPS)
- Power Factor Correction (PFC)

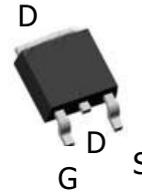
• Product Summary



$V_{DS} = 200V$

$R_{DS(ON)} = 120m\Omega$

$I_D = 18A$



TO-252



• Ordering Information:

Part NO.	CH18N200D
Marking	CH18N200D
Packing Information	REEL TAPE
Basic ordering unit (pcs)	2500

• Absolute Maximum Ratings ($T_c = 25^\circ C$)

Parameter	Symbol	Rating	Unit
Drain-Source Voltage	V_{DS}	200	V
Gate-Source Voltage	V_{GS}	± 30	V
Continuous Drain Current	$I_D @ TC=25^\circ C$	18	A
	$I_D @ TC=75^\circ C$	15	A
	$I_D @ TC=100^\circ C$	8	A
Pulsed Drain Current ①	I_{DM}	72	A
Continuous Body Diode Current I_S	I_S	8	A
Pulsed Diode Forward Current	I_{SM}	72	A
Total Power Dissipation	$P_D @ TC=25^\circ C$	62.5	W
Total Power Dissipation	$P_D @ TA=25^\circ C$	2.25	W
Operating Junction Temperature	T_J	-55 to 150	$^\circ C$
Storage Temperature	T_{STG}	-55 to 150	$^\circ C$
Single Pulse Avalanche Energy	E_{AS}	340	mJ

•Thermal resistance

Parameter	Symbol	Min.	Typ.	Max.	Unit
Thermal resistance, junction - case	R _{thJC}	-	-	1.2	° C/W
Thermal resistance, junction - ambient	R _{thJA}	-	-	62.5	° C/W
Soldering temperature, wavesoldering for 10s	T _{sold}	-	-	265	° C

•Electronic Characteristics

Parameter	Symbol	Condition	Min.	Typ	Max.	Unit
Drain-Source Breakdown Voltage	BV _{DSS}	V _{GS} =0V, I _D =250uA	200			V
Gate Threshold Voltage	V _{GS(TH)}	V _{GS} =V _{DS} , I _D =250uA	2.0		4.0	V
Drain-Source Leakage Current	I _{DSS}	V _{DS} =650V, V _{GS} =0V			1.0	uA
Gate- Source Leakage Current	I _{GSS}	V _{GS} =±30V, V _{DS} =0V			±100	nA
Static Drain-source On Resistance	R _{DS(ON)}	V _{GS} =10V, I _D =9.0A		120	150	mΩ

•Electronic Characteristics

Parameter	Symbol	Condition	Min.	Typ	Max.	Unit
Input capacitance	C _{iss}	DS=25V, V _{GS} =0, =1.0MHz	-	1318	-	pF
Output capacitance	C _{oss}		-	180	-	
Reverse transfer capacitance	C _{rss}		-	75	-	

•Dynamic Characteristics

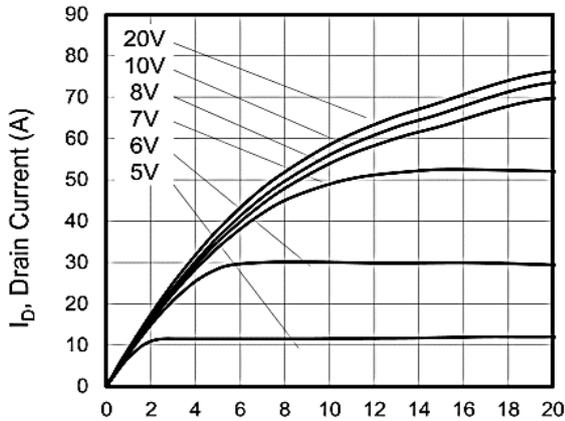
Parameter	Symbol	Condition	Min.	Typ	Max.	Unit
Gate Resistance	R _g	f = 1MHz		10		Ω
Total gate charge	Q _g	V _{DS} =160V, I _D =18A, V _{GS} =10V	-	41	-	nC
Gate - Source charge	Q _{gs}		-	5.5	-	
Gate - Drain charge	Q _{gd}		-	19.5	-	
Turn-ON Delay time	t _{D(on)}	V _{DD} = 100V I _D =18A R _G = 25Ω		24		nS
Turn-ON Rise time	t _r			45		
Turn-Off Delay time	t _{D(off)}			101		
Turn-Off Fall time	t _f			95		
Body Diode Reverse Recovery Time	t _{rr}	I _{GS} = 0V, I _S = 18A, di _f /dt =100A/μs		230		nS

Body Diode Reverse Recovery Charge	Q_{rr}	$di_F/dt = 100A/\mu s$		1.8		μC
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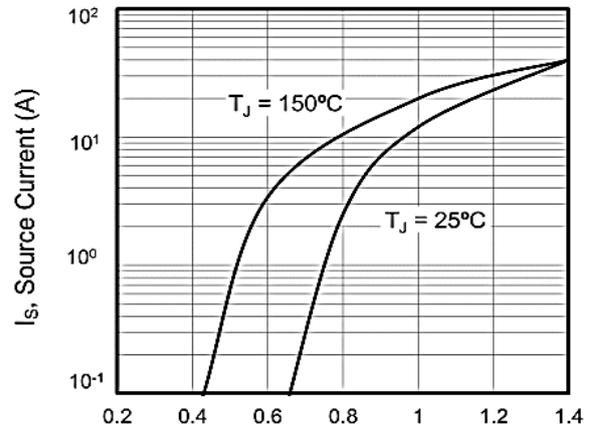
Diode Characteristics

Source-drain voltage	V_{SD}	$V_{GS}=0V, I_{SD}=7A$			1.40	V
Body Diode Reverse Recovery Time	t_{rr}	$V_R=400V, I_F=18A, di/dt=100A/us$		230		nS
Body Diode Reverse Recovery Charge	Q_{rr}			1.8		nC

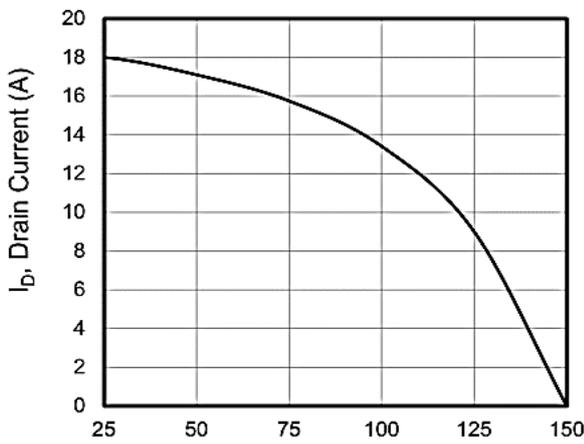
Typical Characteristics



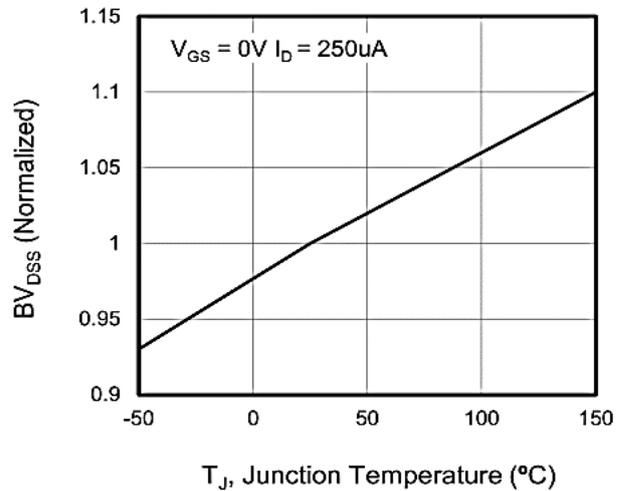
V_{DS} , Drain-to-Source Voltage (V)
Figure 1. Output Characteristics ($T_J = 25^\circ\text{C}$)



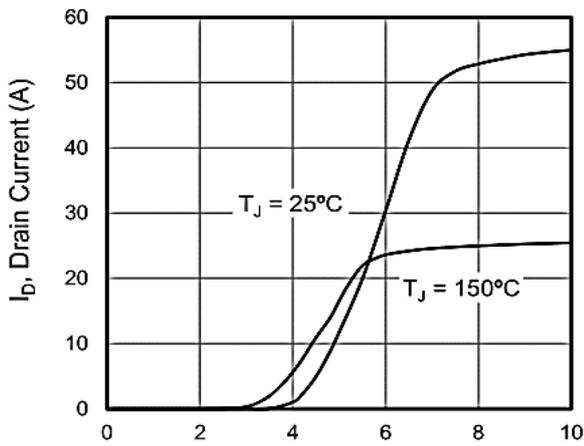
V_{SD} , Source-to-Drain Voltage (V)
Figure 2. Body Diode Forward Voltage



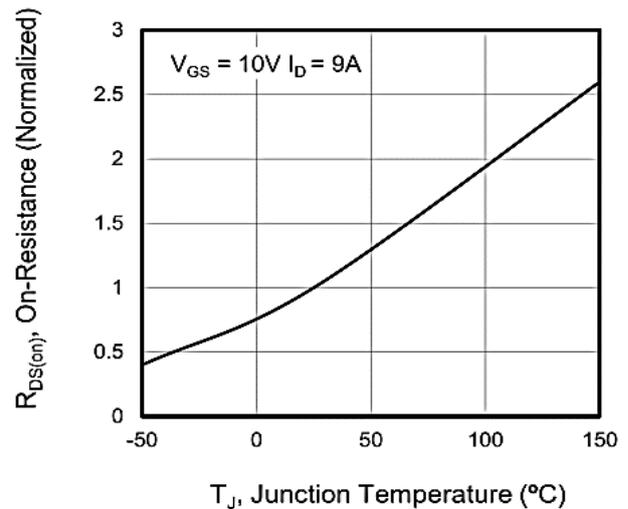
T_C , Case Temperature (A)
Figure 3. Drain Current vs. Temperature



T_J , Junction Temperature ($^\circ\text{C}$)
Figure 4. BV_{DSS} Variation vs. Temperature



V_{GS} , Gate-to-Source Voltage (V)
Figure 5. Transfer Characteristics



T_J , Junction Temperature ($^\circ\text{C}$)
Figure 6. On-Resistance vs. Temperature

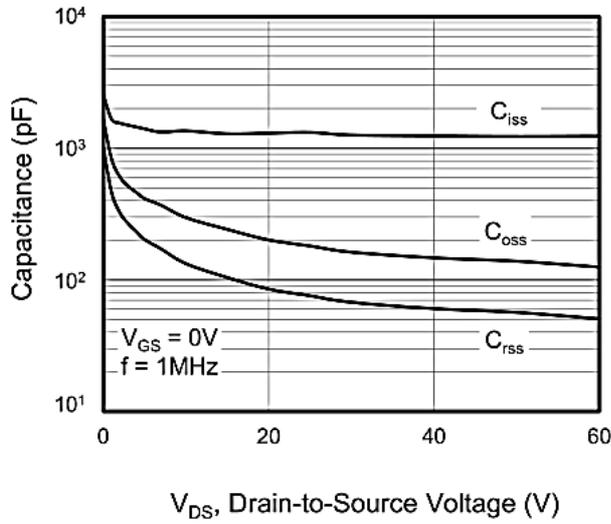


Figure 7. Capacitance

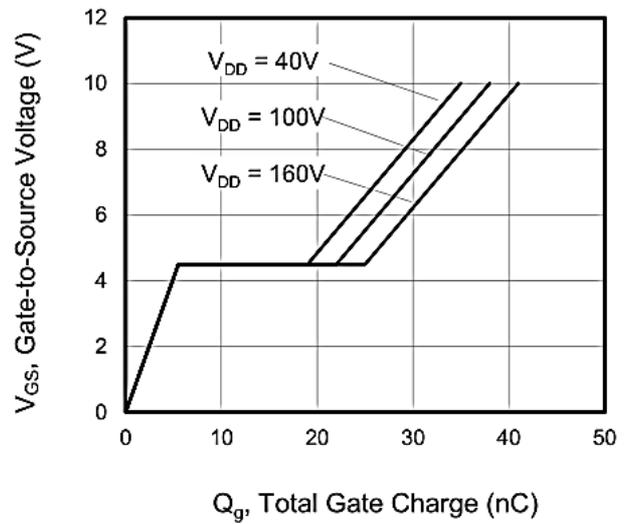


Figure 8. Gate Charge

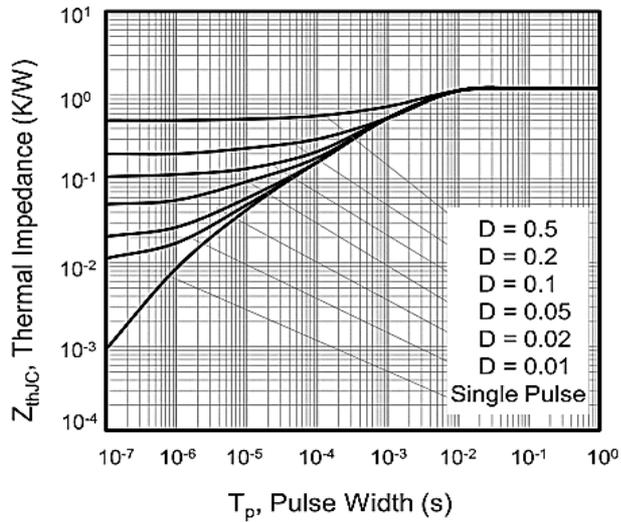


Figure 10. Transient Thermal Impedance

Dimensions (TO-252)

Unit: mm

SYMBOL	min	max	SYMBOL	min	max
A	2.10	2.50	B	0.85	1.25
b	0.50	0.80	b1	0.50	0.90
b2	0.45	0.70	C	0.45	0.70
D	6.30	6.75	D1	5.10	5.50
E	5.30	6.30	e1	2.25	2.35
L1	9.20	10.60	e2	4.45	4.75
L2	0.90	1.75	L3	0.60	1.10
K	0.00	0.23			

