Elektronische Bauelemente

SSD10N20-400D

N-Ch Enhancement Mode Power MOSFET

9.2A, 200V, $R_{DS(ON)}$ 400mΩ

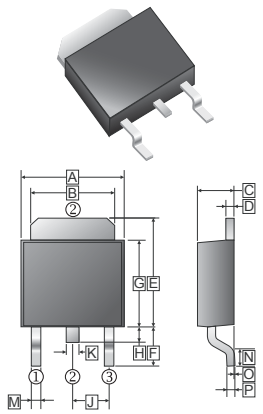
RoHS Compliant Product
A suffix of "-C" specifies halogen free

DESCRIPTION

These miniature surface mount MOSFETs utilize a high cell density trench process to provide Low $R_{DS(on)}$ and to ensure minimal power loss and heat dissipation.

Typical applications are DC-DC converters and power management in portable and battery-powered products such as computers, printers, PCMCIA cards, cellular and cordless telephones.

TO-252(D-Pack)

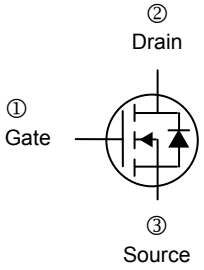


FEATURES

- Low $R_{DS(on)}$ provides higher efficiency and extends battery life.
- Low thermal impedance copper leadframe DPAK saves board space.
- Fast switching speed.
- High performance trench technology.

PACKAGE INFORMATION

Package	MPQ	Leader Size
TO-252	2.5K	13 inch



REF.	Millimeter		REF.	Millimeter	
	Min.	Max.		Min.	Max.
A	6.4	6.8	J	2.30 REF.	
B	5.20	5.50	K	0.70	0.90
C	2.20	2.40	M	0.50	1.1
D	0.45	0.58	N	0.9	1.6
E	6.8	7.3	O	0	0.15
F	2.40	3.0	P	0.43	0.58
G	5.40	6.2			
H	0.8	1.20			

ABSOLUTE MAXIMUM RATINGS (T_A=25°C unless otherwise specified)

Parameter		Symbol	Rating	Unit
Drain-Source Voltage		V_{DS}	200	V
Gate-Source Voltage		V_{GS}	±20	V
Continuous Drain Current	T_C=25°C	I_D	9.2	A
Pulsed Drain Current [2]		I_{DM}	50	A
Continuous Source Current (Diode Conduction)		I_S	45	A
Total Power Dissipation	T_C=25°C	P_D	50	W
Operating Junction and Storage Temperature Range		T_J, T_{STG}	-55~175	°C
Thermal Resistance Rating				
Maximum Thermal Resistance Junction-Ambient [1]		$R_{\theta JA}$	50	°C / W
Maximum Thermal Resistance Junction-Case		$R_{\theta JC}$	3	°C / W

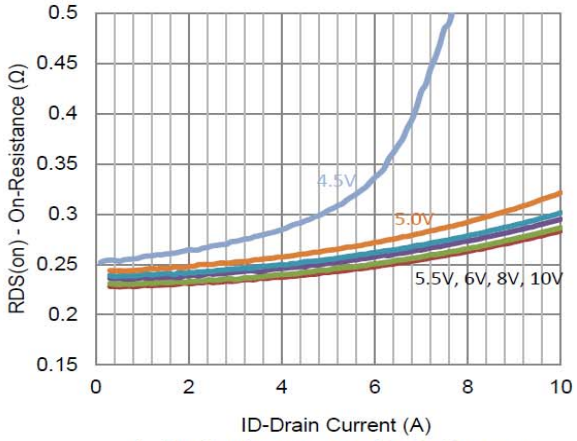
Note:
1. Surface Mounted on 1" x 1" FR4 Board.
2. Pulse width limited by maximum junction temperature

ELECTRICAL CHARACTERISTICS (T_A = 25°C unless otherwise specified)

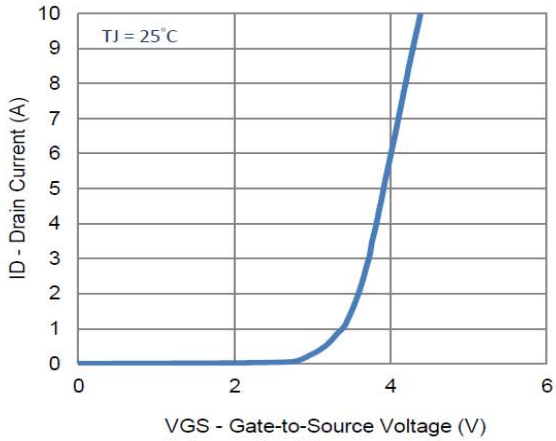
Parameter	Symbol	Min.	Typ.	Max.	Unit	Teat Conditions
Static						
Gate-Threshold Voltage	$V_{GS(th)}$	1	-	3.5	V	V_{DS}= V_{GS}, I_D = 250 μA
Gate-Body Leakage	I_{GSS}	-	-	±10	μA	V_{DS} = 0V, V_{GS}= ±20V
Zero Gate Voltage Drain Current	I_{DSS}	-	-	1	μA	V_{DS}= 160V, V_{GS}= 0V
		-	-	25		V_{DS}= 160V, V_{GS}= 0V, T_J=55°C
On-State Drain Current [1]	$I_{D(on)}$	34	-	-	A	V_{DS} = 5V, V_{GS}= 10V
Drain-Source On-Resistance [1]	$R_{DS(ON)}$	-	-	400	mΩ	V_{GS}= 10V, I_D= 4A
		-	-	450		V_{GS}= 5.5V, I_D= 3.5A
Forward Transconductance [1]	g_{fs}	-	10	-	S	V_{DS}=15V, I_D=4 A
Diode Forward Voltage	V_{SD}	-	0.95	-	V	I_S=23A, V_{GS}= 0 V
Dynamic [2]						
Input Capacitance	C_{iss}	-	807	-	pF	V_{GS} =0 V_{DS}=15V f =1.0MHz
Output Capacitance	C_{oss}	-	81	-		
Reverse Transfer Capacitance	C_{rss}	-	38	-		
Total Gate Charge	Q_g	-	9.1	-	nC	V_{DS} = 100V V_{GS} = 5.5 V I_D = 4A
Gate-Source Charge	Q_{gs}	-	3.8	-		
Gate-Drain Charge	Q_{gd}	-	3.8	-		
Turn-on Delay Time	$T_{d(on)}$	-	3.7	-	nS	V_{DD}= 100 V I_D= 4A V_{GEN} = 10 V R_L= 5 Ω R_{GEN}= 6 Ω
Rise Time	T_r	-	7.7	-		
Turn-off Delay Time	$T_{d(off)}$	-	26.3	-		
Fall Time	T_f	-	12.4	-		

Notes:
1. Pulse test：Pulse width≦300 μs, duty cycle≦2%.
2. Guaranteed by design, not subject to production testing.

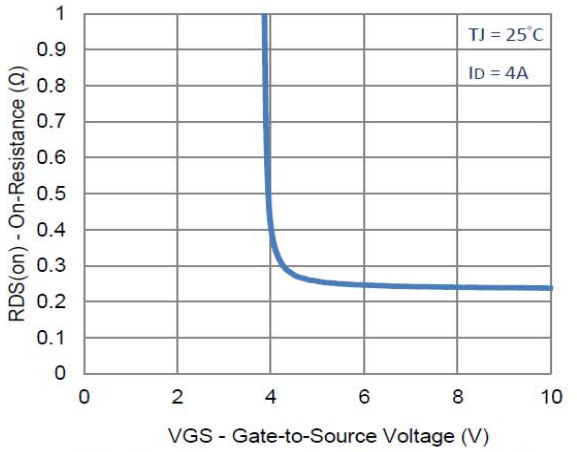
CHARACTERISTIC CURVE



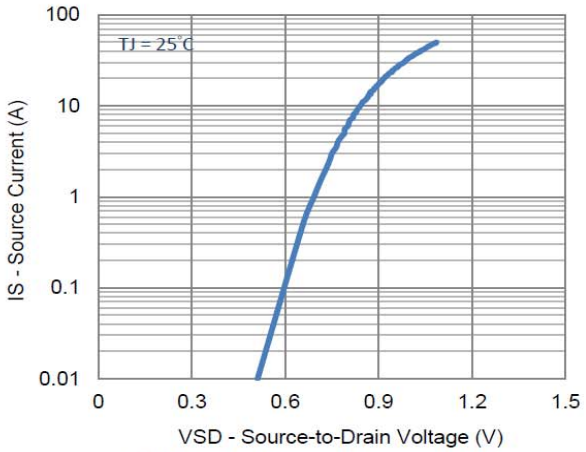
1. On-Resistance vs. Drain Current



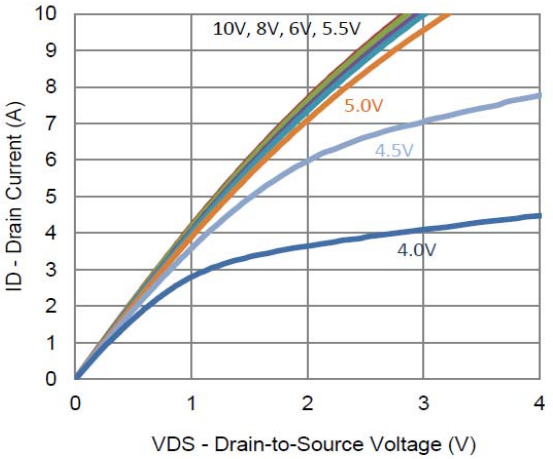
2. Transfer Characteristics



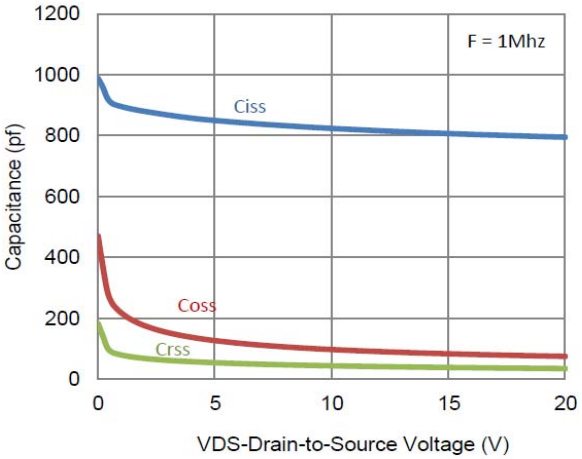
3. On-Resistance vs. Gate-to-Source Voltage



4. Drain-to-Source Forward Voltage

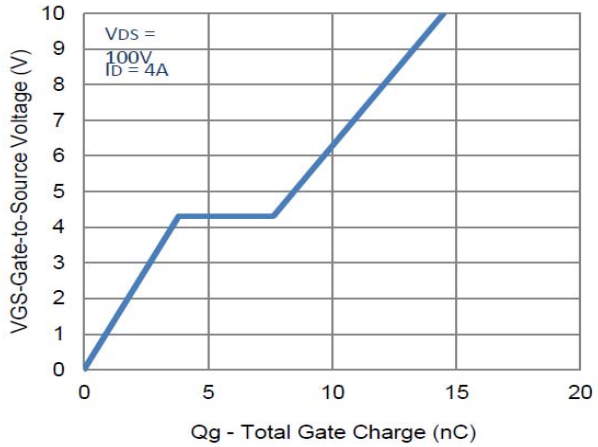


5. Output Characteristics

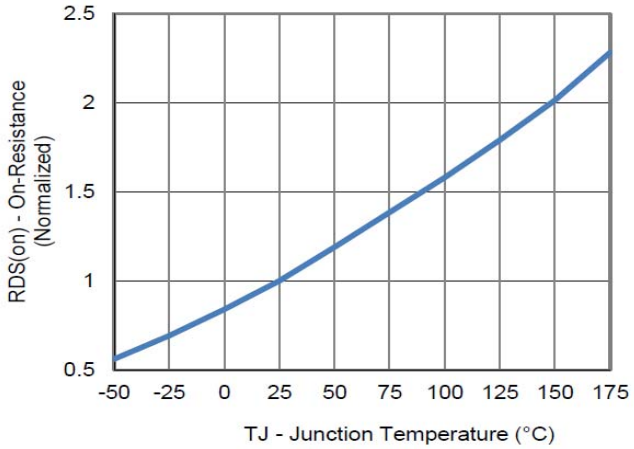


6. Capacitance

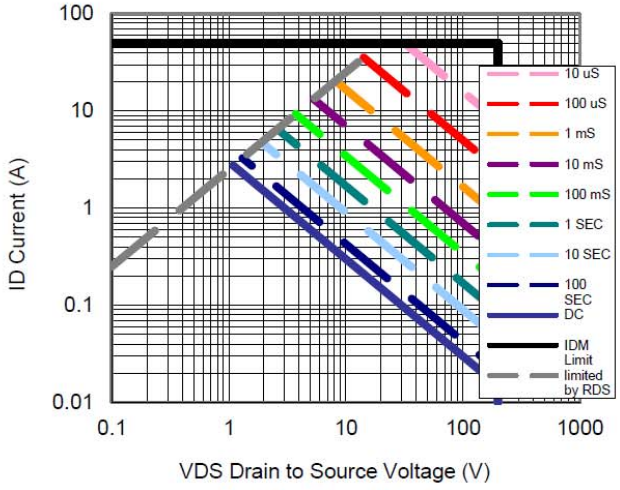
CHARACTERISTIC CURVE



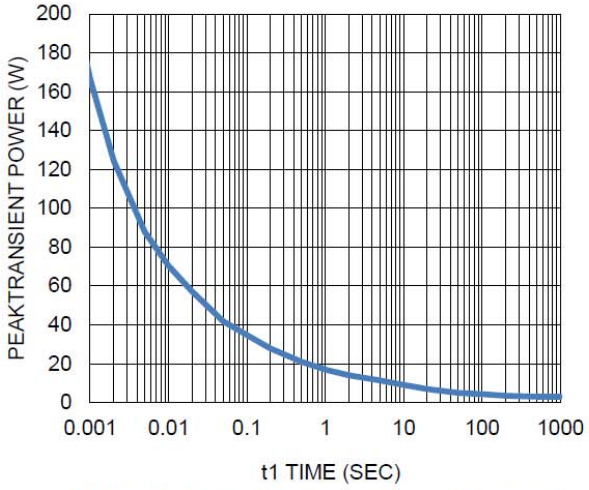
7. Gate Charge



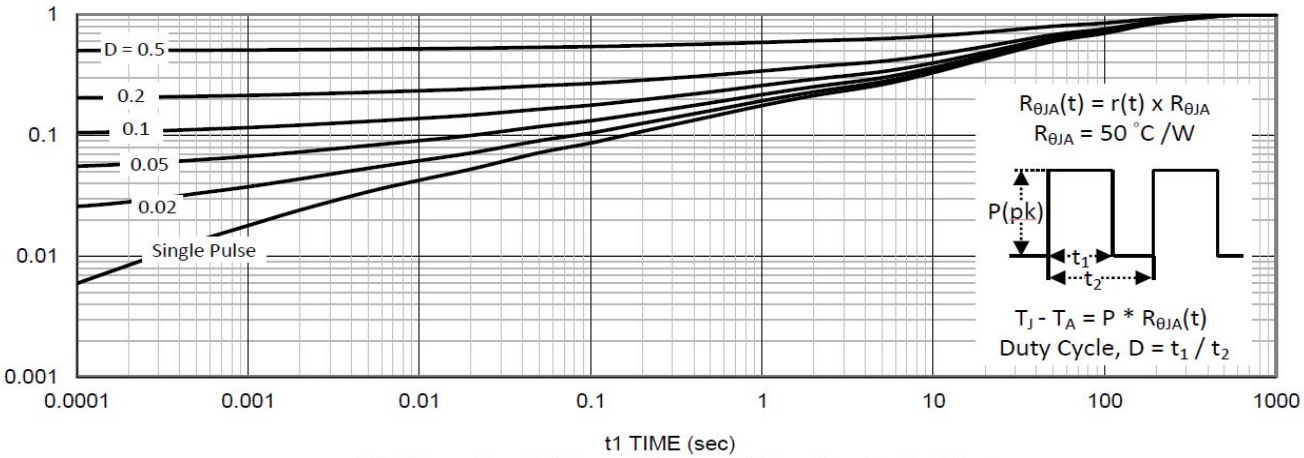
8. Normalized On-Resistance Vs Junction Temperature



9. Safe Operating Area



10. Single Pulse Maximum Power Dissipation



11. Normalized Thermal Transient Junction to Ambient