Elektronische Bauelemente

SSD50N08-14D

55A, 80V, $R_{DS(ON)}$ 11mΩ

N-Ch Enhancement Mode Power MOSFET

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.

FEATURES

- Low $R_{DS(on)}$ provides higher efficiency and extends battery life
- Low thermal impedance copper leadframe TO-252 saves board space
- Fast switching speed
- High performance trench technology

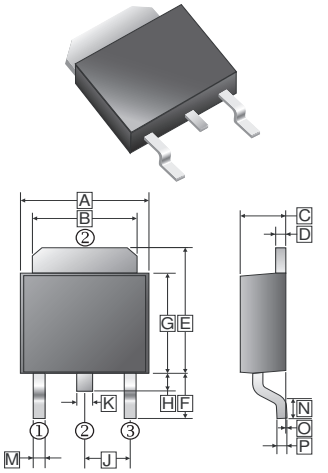
APPLICATION

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

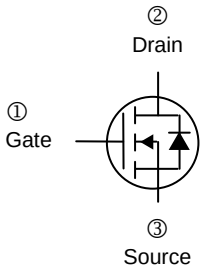
PACKAGE INFORMATION

Package	MPQ	Leader Size
TO-252	2.5K	13' inch

TO-252(D-Pack)



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	Ratings	Unit
Drain-Source Voltage		V_{DS}	80	V
Gate-Source Voltage		V_{GS}	±20	V
Continuous Drain Current [1]	T_A=25℃	I_D	55	A
Pulsed Drain Current [2]		I_{DM}	200	A
Continuous Source Current (Diode Conduction) [1]		I_S	55	A
Power Dissipation [1]	T_A=25℃	P_D	50	W
Operating Junction and Storage Temperature Range		T_J, T_{STG}	-55 ~ 175	℃
Thermal Resistance Ratings				
Maximum Thermal Resistance Junction-Ambient [1]		$R_{\theta JA}$	40	℃ / W
Maximum Thermal Resistance Junction-Case		$R_{\theta JC}$	3.0	℃ / W

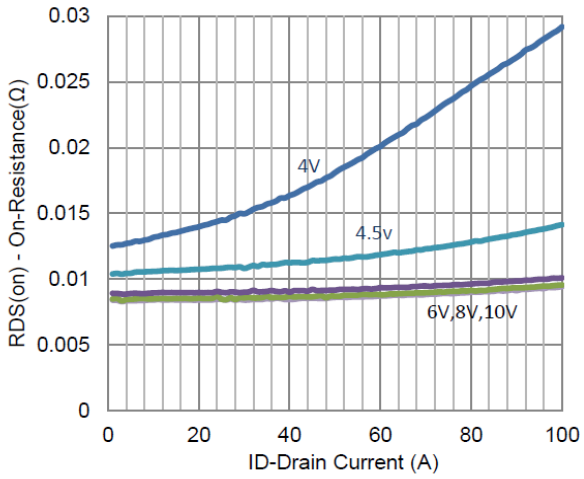
Notes:
1. Surface Mounted on 1" x 1" FR4 Board.
2. Pulse width limited by maximum junction temperature.

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

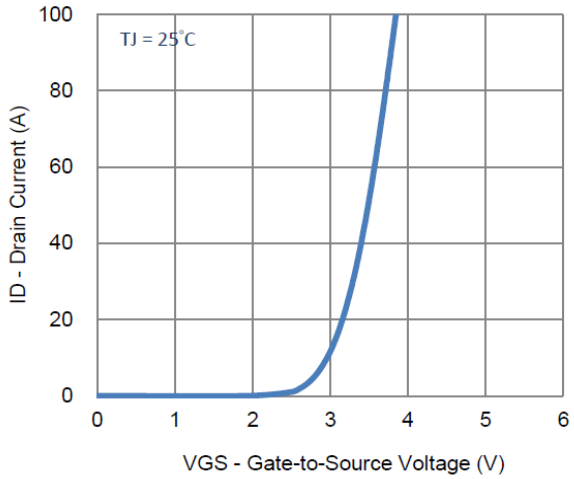
Parameter	Symbol	Min.	Typ.	Max.	Unit	Test conditions
Static						
Gate-Source Threshold Voltage	$V_{GS(th)}$	1	-	-	V	V_{DS}=V_{GS}, I_D=250μA
Gate-Body Leakage	I_{GSS}	-	-	±100	nA	V_{DS}=0, V_{GS}=±20V
Zero Gate Voltage Drain Current	I_{DSS}	-	-	1	μA	V_{DS}=64V, V_{GS}=0
		-	-	25		V_{DS}=64V, V_{GS}=0,T_J=55℃
On-State Drain Current [1]	$I_{D(ON)}$	27.5	-	-	A	V_{DS}=5V, V_{GS}=10V
Drain-Source On-Resistance [1]	$R_{DS(ON)}$	-	-	11	mΩ	V_{GS}=10V, I_D=27.5A
		-	-	13		V_{GS}=4.5V, I_D=25.3A
Forward Transconductance [1]	g_{fs}	-	35	-	S	V_{DS}=15V, I_D=27.5A
Diode Forward Voltage	V_{SD}	-	0.82	-	V	I_S=27A, V_{GS}=0
Dynamic [2]						
Input Capacitance	C_{iss}	-	5052	-	pF	V_{DS}=15 V V_{GS}=0 F=1MHZ
Output Capacitance	C_{rss}	-	471	-		
Reverse Transfer Capacitance	C_{oss}	-	446	-		
Total Gate Charge	Q_g	-	58	-	nC	I_D=20A V_{DS}=40V V_{GS}=4.5V
Gate-Source Charge	Q_{gs}	-	14	-		
Gate-Drain Change	Q_{gd}	-	39	-		
Turn-on Delay Time	$T_{d(on)}$	-	19	-	nS	V_{DS}=40V I_D=20A R_L= 2Ω V_{GEN}=10V R_{GEN}=6Ω
Rise Time	T_r	-	45	-		
Turn-off Delay Time	$T_{d(off)}$	-	178	-		
Fall Time	T_f	-	62	-		

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

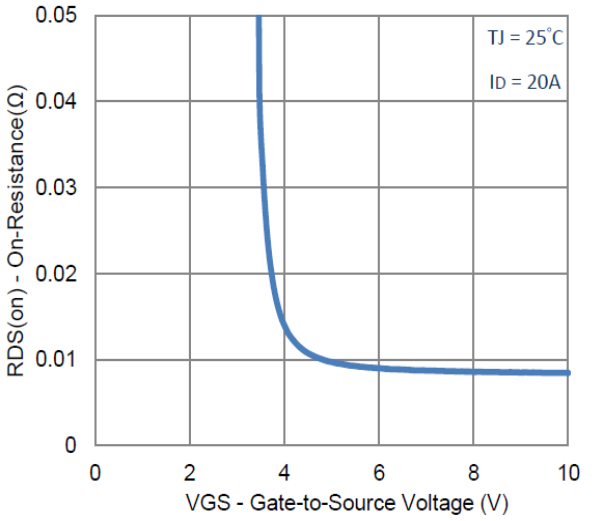
Typical Electrical Characteristics



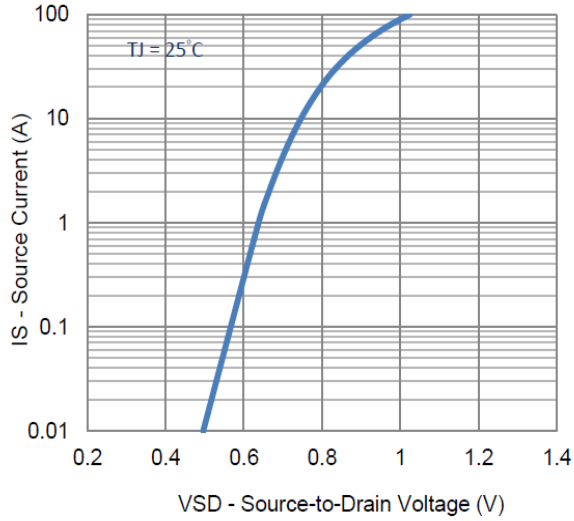
1. On-Resistance vs. Drain Current



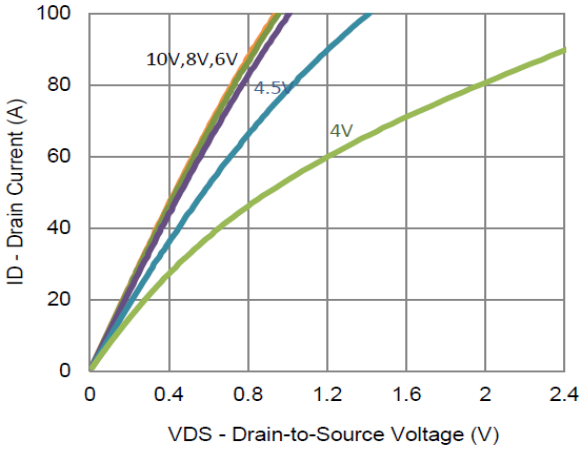
2. Transfer Characteristics



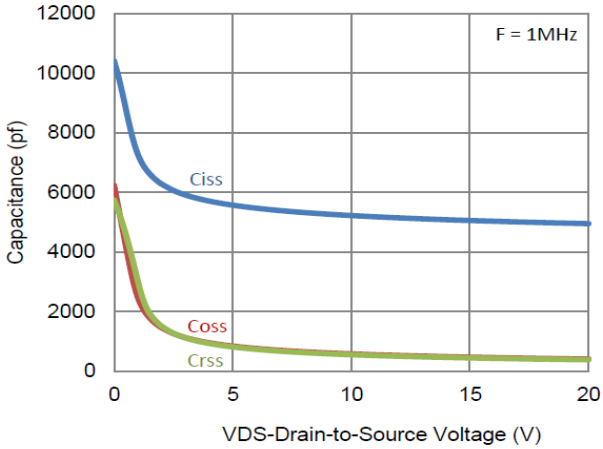
3. On-Resistance vs. Gate-to-Source Voltage



4. Drain-to-Source Forward Voltage

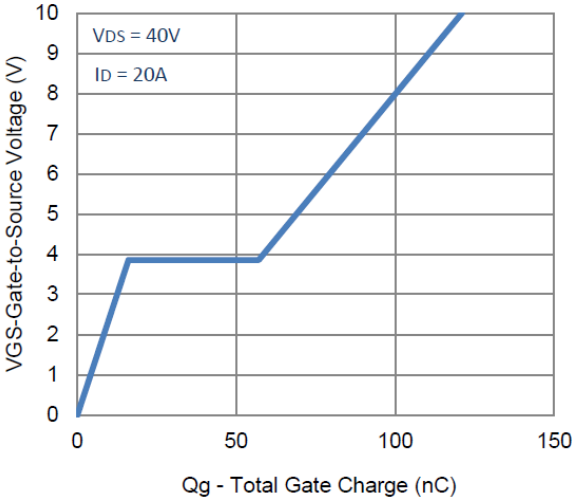


5. Output Characteristics

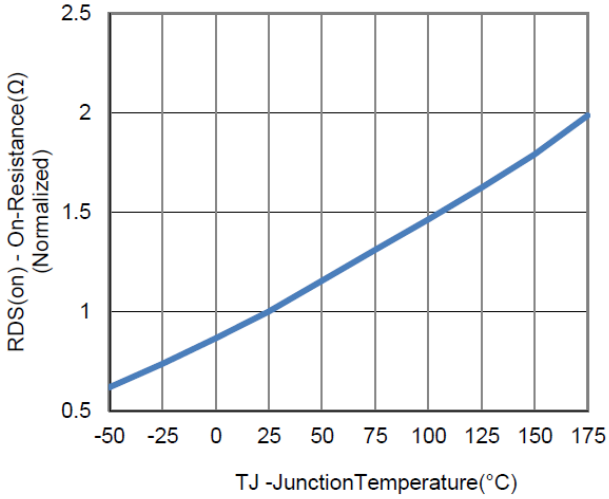


6. Capacitance

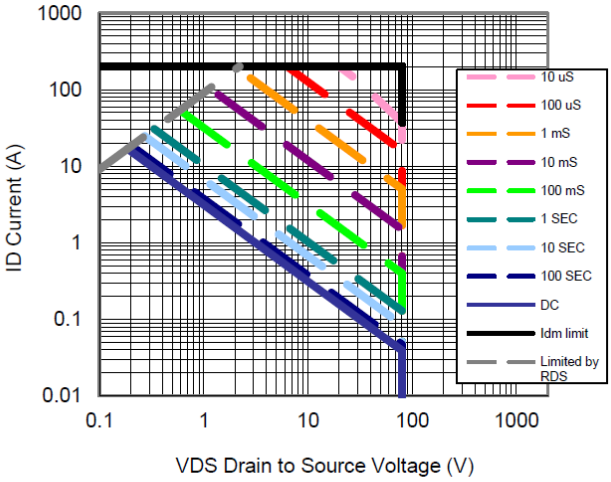
Typical Electrical Characteristics



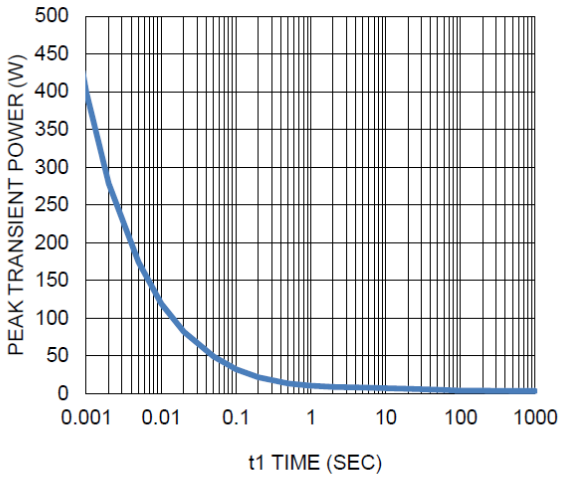
7. Gate Charge



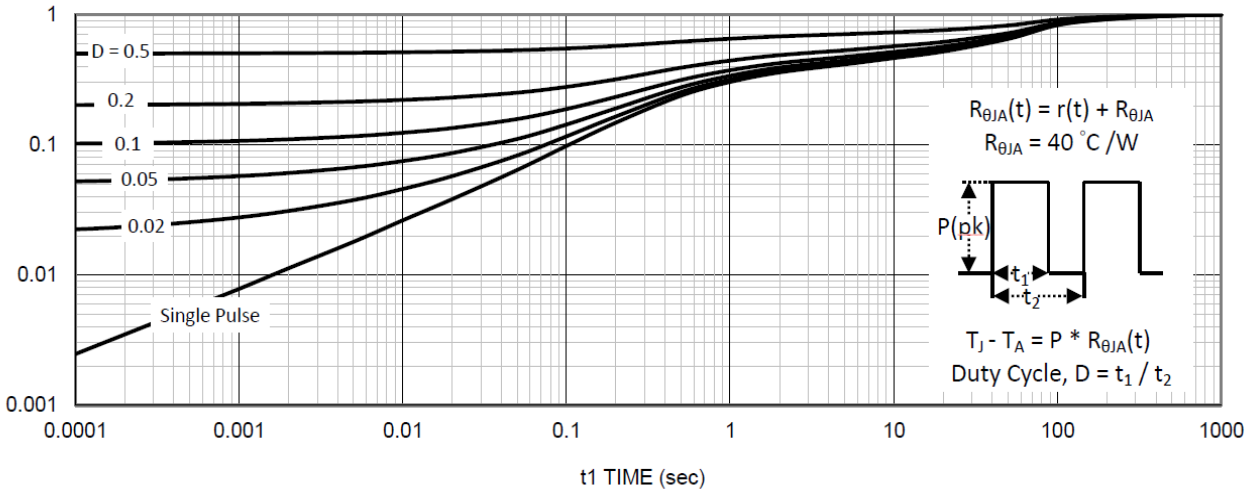
8. Normalized On-Resistance Vs Junction Temperature



9. Safe Operating Area



10. Single Pulse Maximum Power Dissipation



11. Normalized Thermal Transient Junction to Ambient