Elektronische Bauelemente

SSD30N03-40D

N-Ch Enhancement Mode Power MOSFET

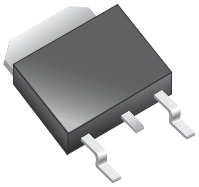
34A, 30V, $R_{DS(ON)}$ 26mΩ

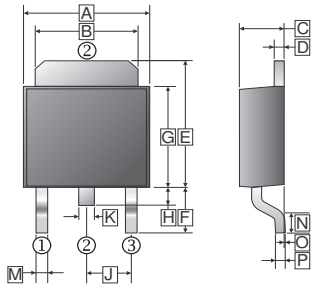
RoHS Compliant Product
A suffix of "-C" specifies halogen free

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.

TO-252(D-Pack)





FEATURES

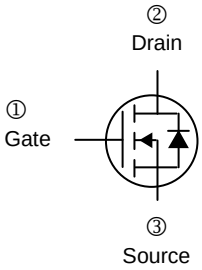
- Low $R_{DS(on)}$ provides higher efficiency and extends battery life.
- Low thermal impedance copper leadframe DPAK saves board space.
- Fast switching speed.
- High performance trench technology.

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



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}	30	V
Gate-Source Voltage		V_{GS}	±20	V
Continuous Drain Current [1]	T_C=25°C	I_D	34	A
Pulsed Drain Current [2]		I_{DM}	72	A
Continuous Source Current (Diode Conduction) [1]		I_S	30	A
Total Power Dissipation [1]	T_C=25°C	P_D	50	W
Operating Junction and Storage Temperature Range		T_J, T_{STG}	-55 ~ 175	℃
Thermal Resistance Rating				
Maximum Thermal Resistance Junction-Ambient [1]		$R_{\theta JA}$	50	℃ / W
Maximum Thermal Resistance Junction-Case		$R_{\theta JC}$	3	℃ / 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	Teat Conditions
Static						
Gate-Threshold Voltage	$V_{GS(th)}$	1	-	-	V	V_{DS}=V_{GS}, I_D =250 μA
Gate-Body Leakage	I_{GSS}	-	-	±100	nA	V_{DS} =0, V_{GS}=20V
Zero Gate Voltage Drain Current	I_{DSS}	-	-	1	μA	V_{DS}=24V, V_{GS}=0
		-	-	25		V_{DS}=24V, V_{GS}=0, T_J=55℃
On-State Drain Current [1]	$I_{D(on)}$	34	-	-	A	V_{DS} =5V, V_{GS}=10V
Drain-Source On-Resistance [1]	$R_{DS(ON)}$	-	-	26	mΩ	V_{GS}=10V, I_D=17A
		-	-	35		V_{GS}=4.5V, I_D=11A
Forward Transconductance [1]	g_{fs}	-	22	-	S	V_{DS}=15V, I_D=17A
Diode Forward Voltage	V_{SD}	-	1.1	-	V	I_S=34A, V_{GS}=0
Dynamic [2]						
Total Gate Charge	Q_g	-	4	-	nC	V_{DS}=15V V_{GS}=4.5V I_D=11A
Gate-Source Charge	Q_{gs}	-	1.1	-		
Gate-Drain Charge	Q_{gd}	-	1.4	-		
Input Capacitance	C_{iss}	-	720	-	pF	V_{DS}=15V V_{GS}=0 f=1MHz
Output Capacitance	C_{oss}	-	165	-		
Reverse Transfer Capacitance	C_{rss}	-	60	-		
Turn-on Delay Time	$T_{d(on)}$	-	16	-	nS	V_{DD}=25V I_D=34A V_{GEN}=10V R_L=25Ω
Rise Time	T_r	-	5	-		
Turn-off Delay Time	$T_{d(off)}$	-	23	-		
Fall Time	T_f	-	3	-		

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

CHARACTERISTIC CURVES

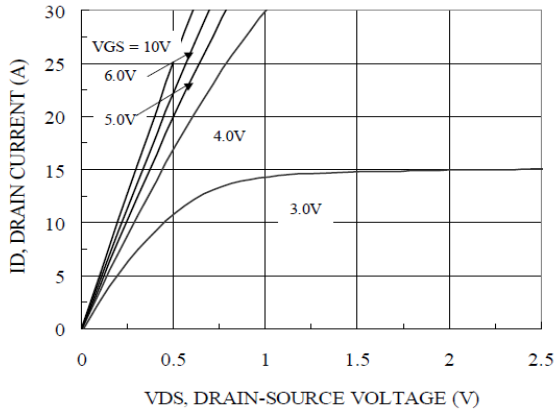


Figure 1. On-Region Characteristics

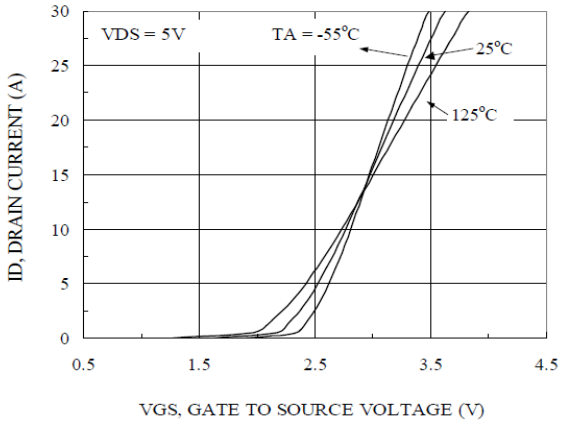


Figure 2. Body Diode Forward Voltage Variation with Source Current and Temperature

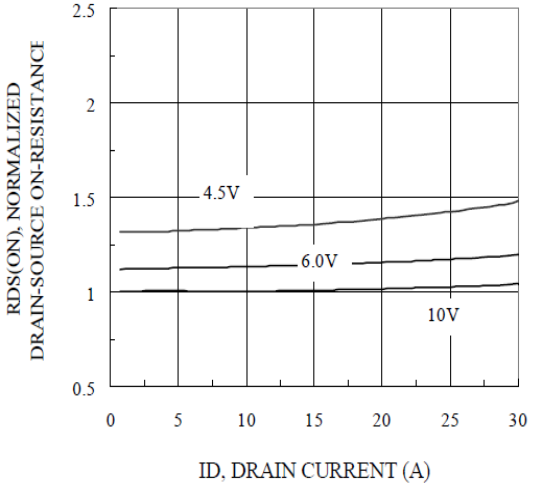


Figure 3. On Resistance Vs Vgs Voltage

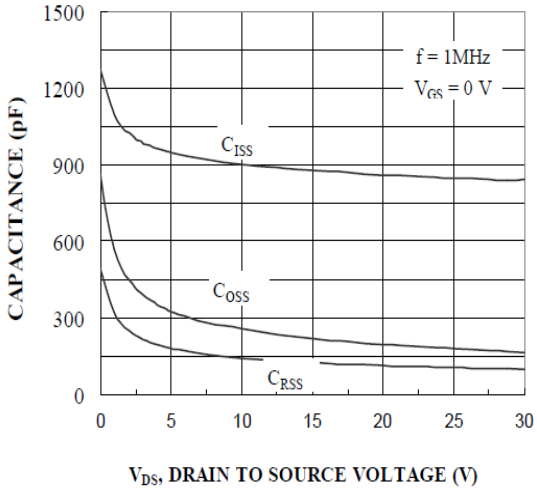


Figure 4. Capacitance Characteristics

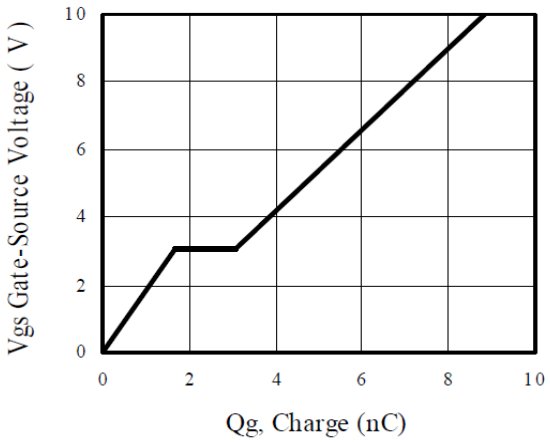


Figure 5. Gate Charge Characteristics

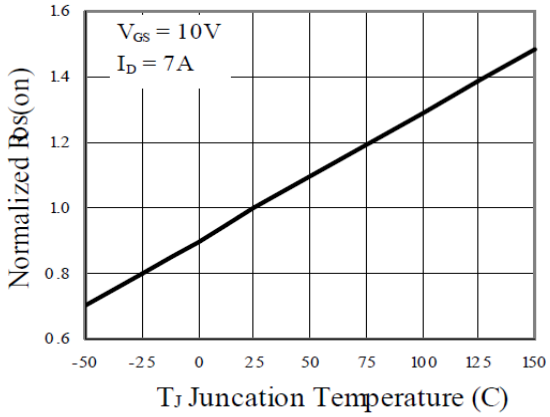


Figure 6. On-Resistance Variation with Temperature

CHARACTERISTIC CURVES

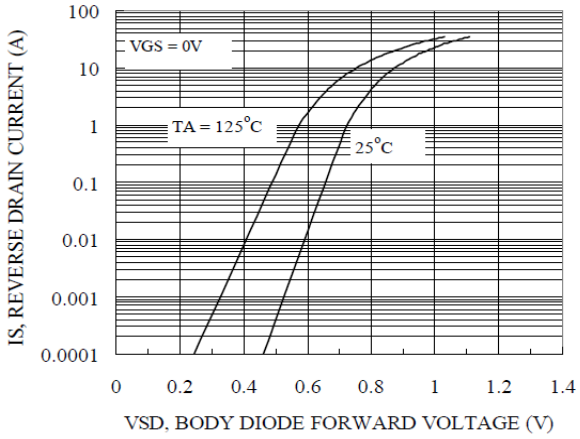


Figure 7. Transfer Characteristics

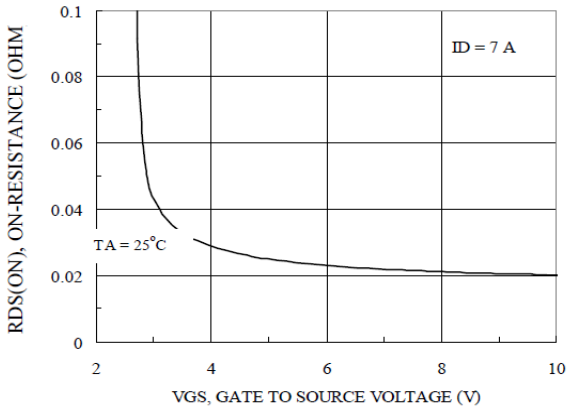


Figure 8. On-Resistance with Gate to Source Voltage

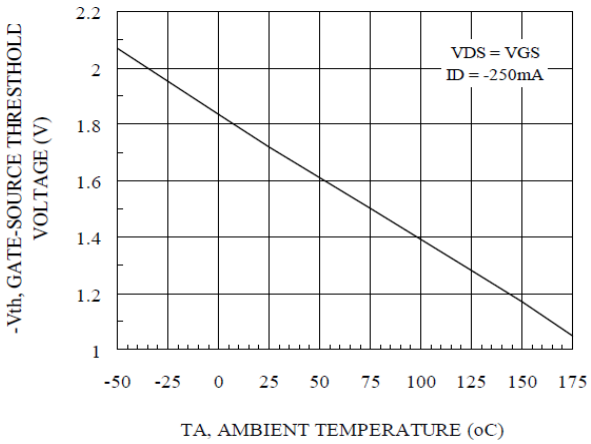


Figure 9. Vth Gate to Source Voltage Vs Temperature

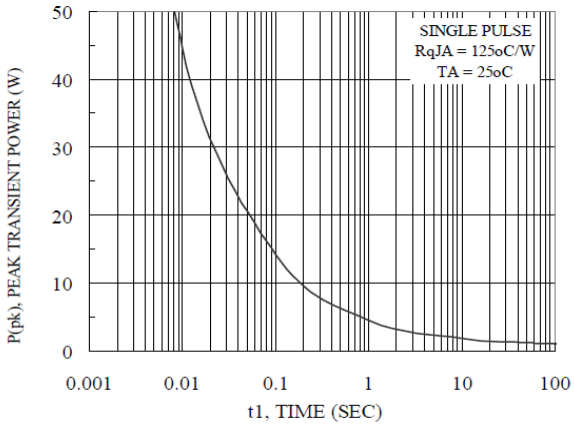


Figure 10. Single Pulse Maximum Power Dissipation

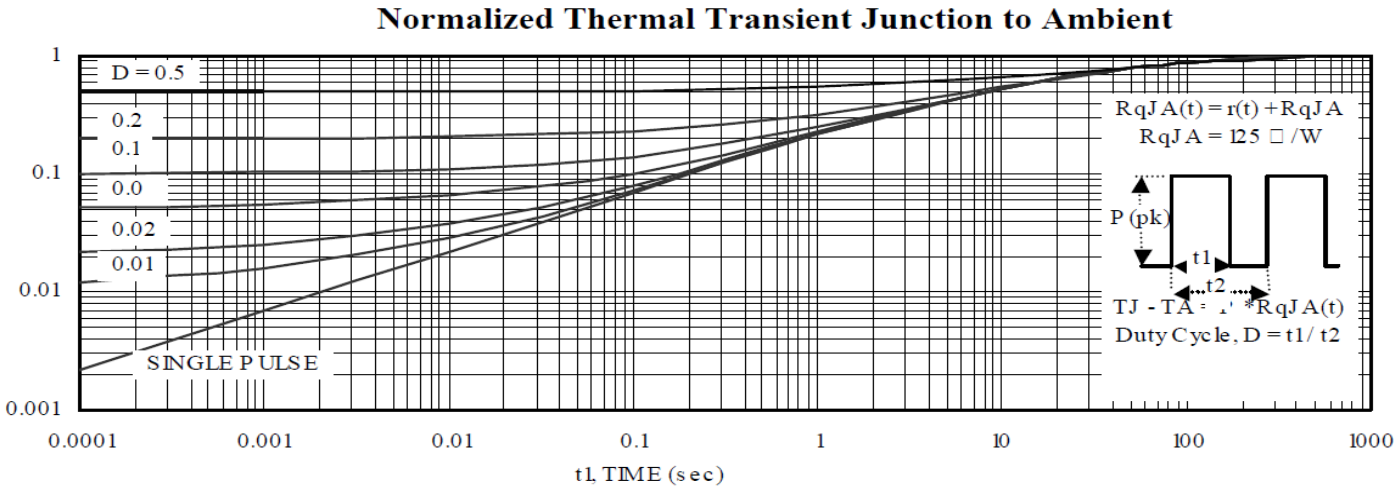


Figure 11. Transient Thermal Response Curve