Elektronische Bauelemente

SSD55N03

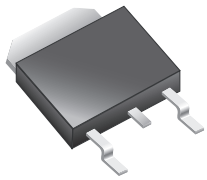
55A, 25V, $R_{DS(ON)}$ 6mΩ
N-Ch Enhancement Mode Power MOSFET

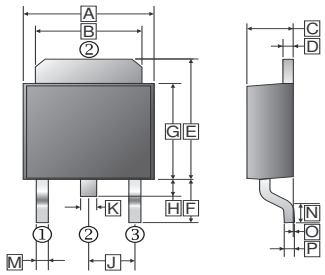
RoHS Compliant Product
A suffix of "-C" specifies halogen free

DESCRIPTION

The SID55N03 provide the designer with the best combination of fast switching,ruggedized device design, low on-resistance and cost-effectiveness. The TO-252 package is universally preferred for all commercial-industrial surface mount applications and suited for low voltage applications such as DC/DC converters.

TO-252(D-Pack)

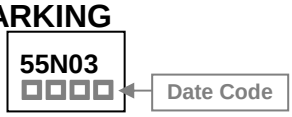


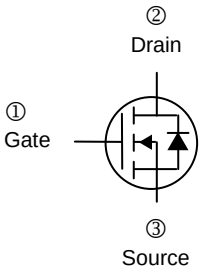


FEATURES

- Dynamic dv/dt Rating
- Simple Drive Requirement
- Repetitive Avalanche Rated
- Fast Switching

MARKING





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			

PACKAGE INFORMATION

Package	MPQ	LeaderSize
TO-252	2.5K	13' inch

ABSOLUTE MAXIMUM RATINGS (T_A=25℃ unless otherwise specified)

Parameter		Symbol	Rating	Unit
Drain-Source Voltage		V_{DS}	25	V
Gate-Source Voltage		V_{GS}	±20	V
Continuous Drain Current	T_C=25℃	I_D	55	A
	T_C=100℃		35	A
Pulsed Drain Current [1]		I_{DM}	215	A
Total Power Dissipation		P_D	62.5	W
Linear Derating Factor			0.5	W / ℃
Single Pulse Avalanche Energy[2]		E_{AS}	240	mJ
Single Pulse Avalanche Current		I_{AS}	31	A
Operating Junction and Storage Temperature Range		T_J, T_{STG}	-55~150	℃
Thermal Resistance Rating				
Maximum Thermal Resistance Junction-Ambient		$R_{\theta JA}$	110	℃ / W
Maximum Thermal Resistance Junction-Case		$R_{\theta JC}$	2.0	℃ / W

ELECTRICAL CHARACTERISTICS (T_J = 25℃ unless otherwise specified)

Parameter		Symbol	Min.	Typ.	Max.	Unit	Teat Conditions
Static							
Dran-Source Breakdown Voltage		BV_{DSS}	25	-	-	V	V_{GS}=0, I_D= 250μA
Breakdown Voltage Temperature Coefficient		$\triangle BV_{DSS}$ /$\triangle T_J$	-	0.037	-	V/℃	Reference to 25℃, I_D=1mA
Gate-Threshold Voltage		$V_{GS(th)}$	1.0	-	3.0	V	V_{DS}=V_{GS}, I_D=250μA
Forward Transconductance		g_{fs}	-	30	-	S	V_{DS}=10V, I_D=28A
Gate-Source Leakage Current		I_{GSS}	-	-	±100	nA	V_{GS}= ±20V
Drain-Source Leakage Current	T_J =25℃	I_{DSS}	-	-	1	μA	V_{DS}=25V, V_{GS}=0
	T_J =150℃		-	-	25	μA	V_{DS}=20V, V_{GS}=0
Static Drain-Source On-Resistance [3]		$R_{DS(ON)}$	-	4.5	6	mΩ	V_{GS}=10V, I_D=30A
			-	7	9		V_{GS}=4.5V, I_D=30A
Total Gate Charge [3]		Q_g	-	16.8	-	nC	I_D=28A V_{DS}=20V V_{GS}=5V
Gate-Source Charge		Q_{gs}	-	6.0	-		
Gate-Drain (“Miller”) Change		Q_{gd}	-	4.9	-		
Turn-on Delay Time[3]		$T_{d(on)}$	-	15.1	-	nS	V_{DS}=15 V I_D=28 A V_{GS}=10V R_G=3.3 Ω R_D=0.53Ω
Rise Time		T_r	-	4	-		
Turn-off Delay Time		$T_{d(off)}$	-	45.2	-		
Fall Time		T_f	-	7.6	-		
Input Capacitance		C_{ISS}	-	2326	-	pF	V_{GS} =0 V_{DS}=25 V f =1.0MHz
Output Capacitance		C_{OSS}	-	331	-		
Reverse Transfer Capacitance		C_{RSS}	-	174	-		
Source-Drain Diode							
Diode Forward Voltage [3]		V_{SD}	-	-	1.5	V	I_S=20A, V_{GS}=0, T_J=25℃
Continuous Source Current (Body Diode)		I_S	-	-	55	A	V_D=V_G=0, V_S=1.5V

Notes:
1. Pulse width limited by safe operating area.
2. Staring T_J=25℃, V_{DD}=20V, L=0.1mH, R_G=25, I_{AS}=10A.
3. Pulse width ≦ 300 μs, duty cycle ≦ 2%.

CHARACTERISTIC CURVES

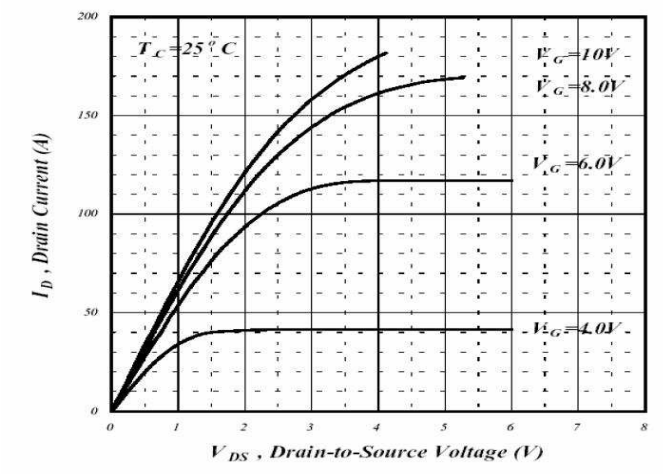


Fig 1. Typical Output Characteristics

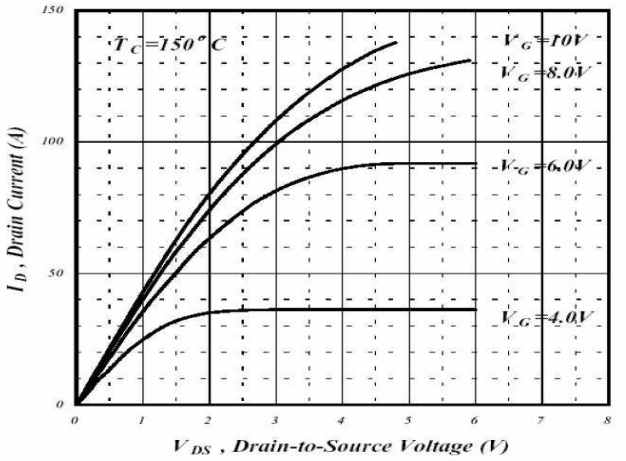


Fig 2. Typical Output Characteristics

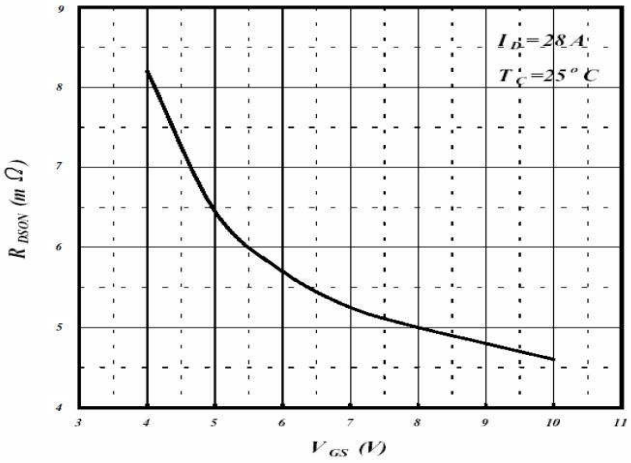


Fig 3. On-Resistance v.s. Gate Voltage

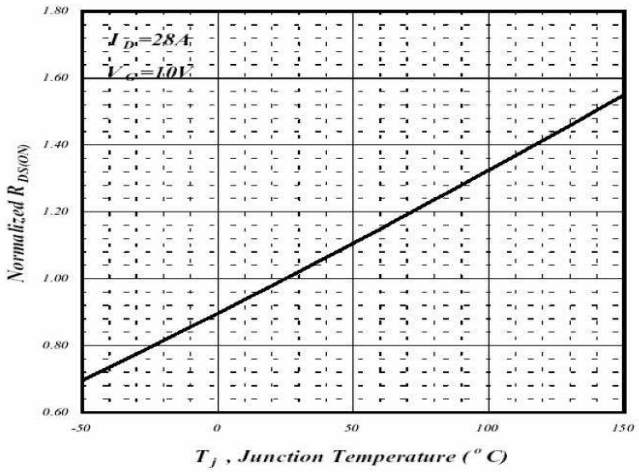


Fig 4. Normalized On-Resistance v.s. Junction Temperature

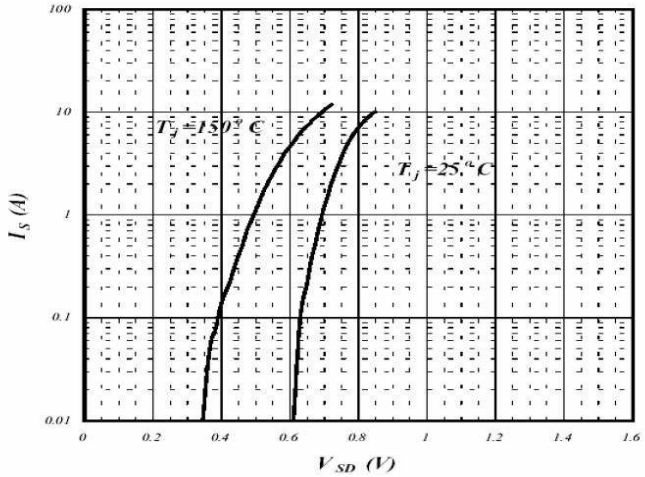


Fig 5. Forward Characteristics of Reverse Diode

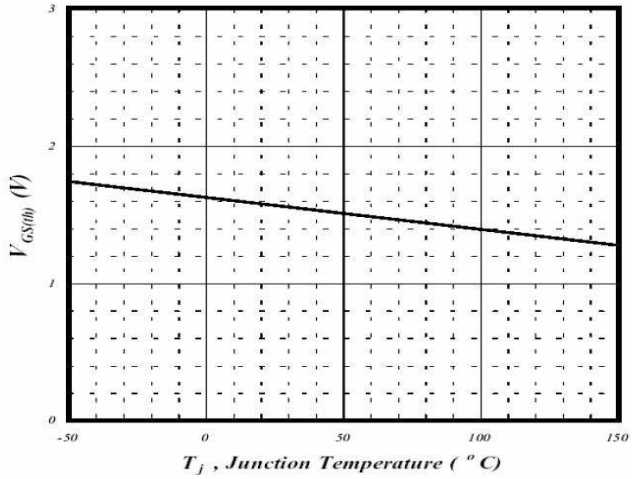


Fig 6. Gate Threshold Voltage v.s. Junction Temperature

CHARACTERISTIC CURVES

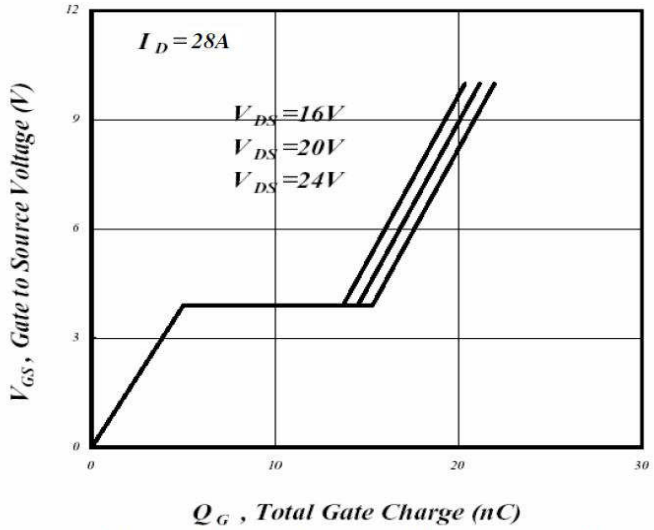


Fig 7. Gate Charge Characteristics

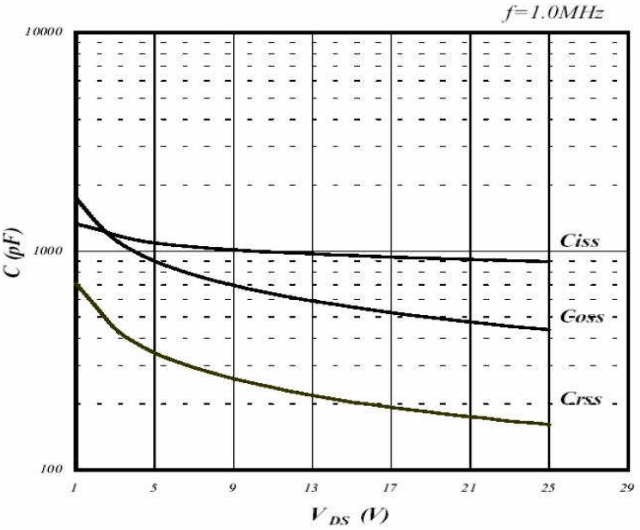


Fig 8. Typical Capacitance Characteristics

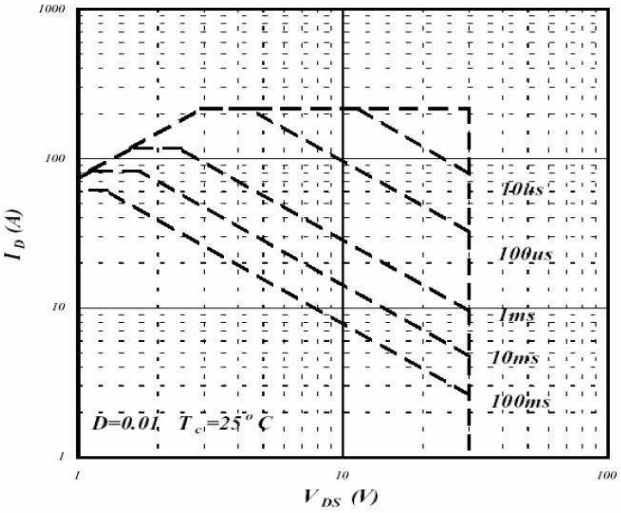


Fig 9. Maximum Safe Operating Area

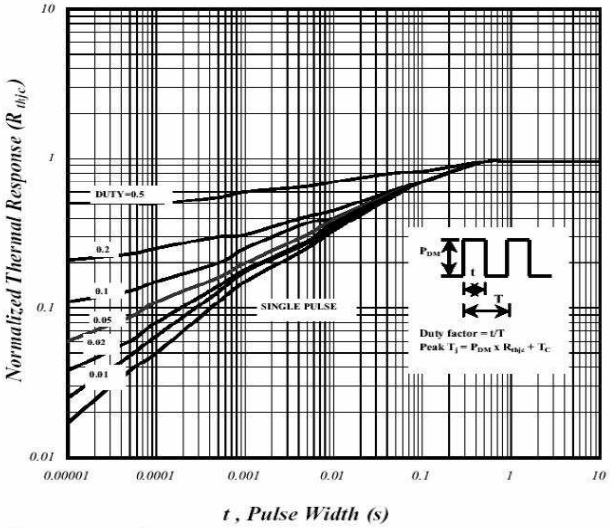


Fig 10. Effective Transient Thermal Impedance

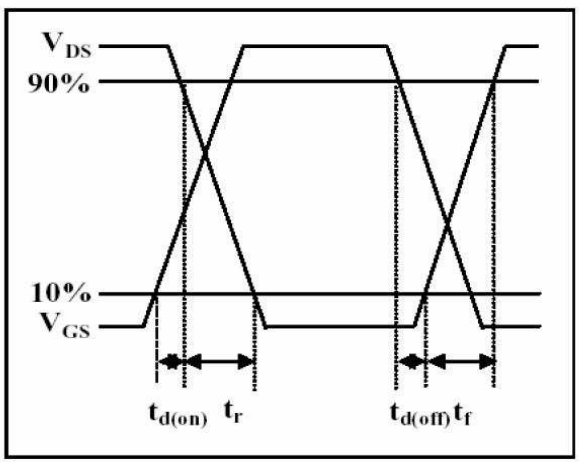


Fig 11. Switching Time Waveform

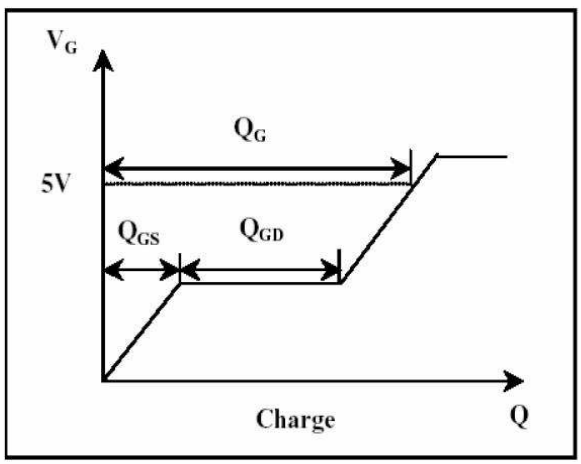


Fig 12. Gate Charge Waveform