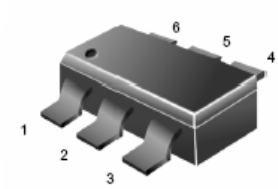
Small Signal MOSFET
30 Volts
N–Channel SC–88

L2N7002FDW1T1G
S-L2N7002FDW1T1G

- We declare that the material of product are Halogen Free and compliance with RoHS requirements.
- S- Prefix for Automotive and Other Applications Requiring Unique Site and Control Change Requirements; AEC-Q101 Qualified and PPAP Capable.



SOT–363/SC–88

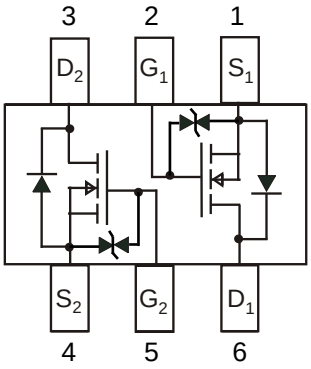
FEATURES

- $R_{DS(ON)} \leqq 8\Omega @ V_{GS}=4V$
- $R_{DS(ON)} \leqq 13\Omega @ V_{GS}=2.5V$
- Super high density cell design for extremely low $R_{DS(ON)}$
- Exceptional on-resistance and maximum DC current capability
- Capable doing Cu wire bonding
- ESD Protected:1000V

APPLICATIONS

- Power Management in Note book
- Portable Equipment
- Battery Powered System
- Load Switch

Simplified Schematic



(Top View)

ORDERING INFORMATION

Device	Marking	Shipping
L2N7002FDW1T1G S-L2N7002FDW1T1G	72F	3000 Tape & Reel
L2N7002FDW1T3G S-L2N7002FDW1T3G	72F	10000 Tape & Reel

THERMAL CHARACTERISTICS

Characteristic	Symbol	Max	Unit
Total Device Dissipation FR–5 Board (Note 1.) T_A = 25°C Derate above 25°C	P_D	225 1.8	mW mW/°C
Thermal Resistance, Junction to Ambient	$R_{\theta JA}$	556	°C/W
Total Device Dissipation Alumina Substrate,(Note 2.) T_A = 25°C Derate above 25°C	P_D	300 2.4	mW mW/°C
Thermal Resistance, Junction to Ambient	$R_{\theta JA}$	417	°C/W
Junction and Storage Temperature	T_J, T_{stg}	-55 to +150	°C

1. FR–5 = 1.0 x 0.75 x 0.062 in.
2. Alumina = 0.4 x 0.3 x 0.025 in 99.5% alumina.

Absolute Maximum Ratings (T_A=25℃ Unless Otherwise Noted)

Parameter	Symbol	Maximum Ratings	Unit
Drain-Source Voltage	V_{DS}	30	V
Gate-Source Voltage	V_{GS}	±20	V

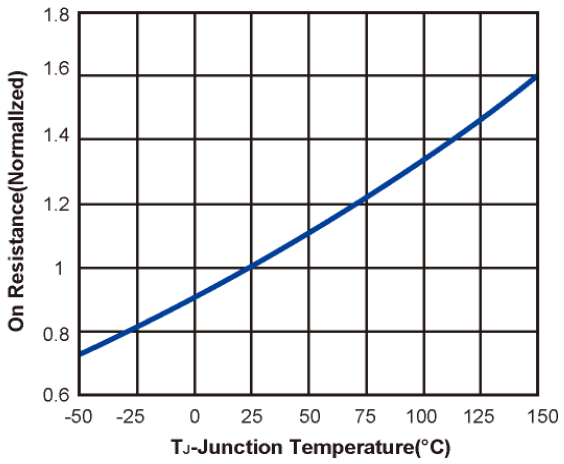
Electrical Characteristics (T_j =25℃ Unless Otherwise Specified)

Symbol	Parameter	Limit	Min	Typ	Max	Unit
STATIC						
BV_{DSS}	Drain-Source Breakdown Voltage	V_{GS}=0V, I_D=250μA	30			V
$V_{GS(th)}$	Gate Threshold Voltage	V_{DS}=V_{GS}, I_D=250μA	0.8		1.5	V
I_{GSS}	Gate-Body Leakage	V_{DS}=0V, V_{GS}=±20V			±10	μA
I_{DSS}	Zero Gate Voltage Drain Current	V_{DS}=30V, V_{GS}=0V			1	μA
$R_{DS(ON)}$	Drain-Source On-Resistance*	V_{GS}=4V, I_D=10mA		5	8	Ω
		V_{GS}=2.5V, I_D=1mA		7	13	
V_{SD}	Diode Forward Voltage *	I_S=200mA, V_{GS}=0V			1.2	V
DYNAMIC						
Qg	Total Gate Charge	V_{DS}=25V, V_{GS}=10V, I_D=0.22A		4.9		nC
Qgs	Gate-Source Charge			2.1		
Qgd	Gate-Drain Charge			0.6		
Ciss	Input Capacitance	V_{DS}=25V, V_{GS}=0V, f=1MHz		21		pF
Coss	Output Capacitance			10		
Crss	Reverse Transfer Capacitance			2		
$t_{d(on)}$	Turn-On Delay Time	V_{DD}=5V, R_L =500Ω V_{GES}=5V,R_G=10Ω		10.1		ns
tr	Turn-On Rise Time			7.3		
$t_{d(off)}$	Turn-Off Delay Time			31.3		
t_f	Turn-Off Fall Time			28.2		

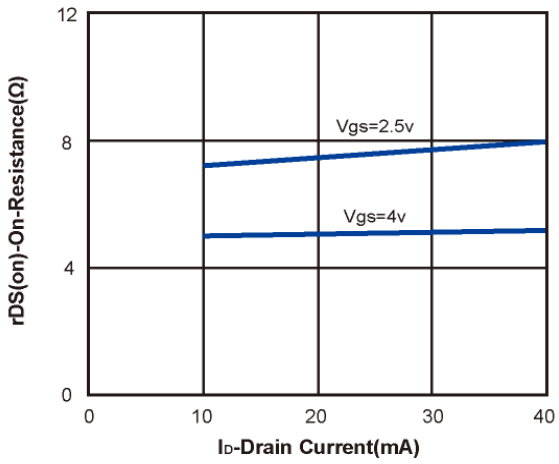
Notes: *. Pulse test; pulse width ≦ 300us, duty cycle≦ 2%.

Typical Characteristics (T_J =25℃ Noted)

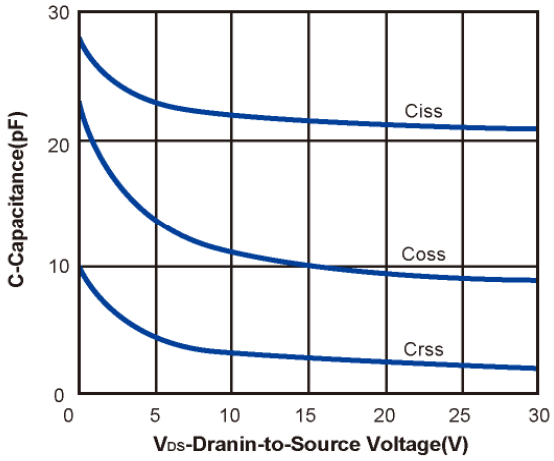
On Resistance vs. Junction Temperature



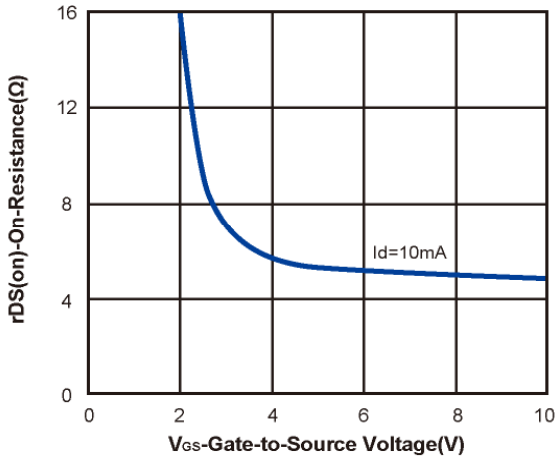
On Resistance vs. Drain Current



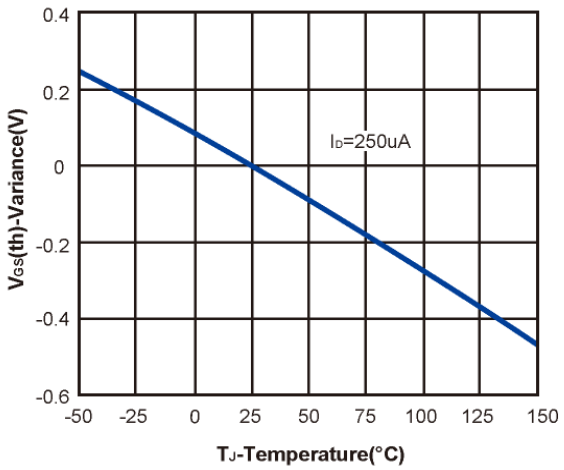
Capacitance



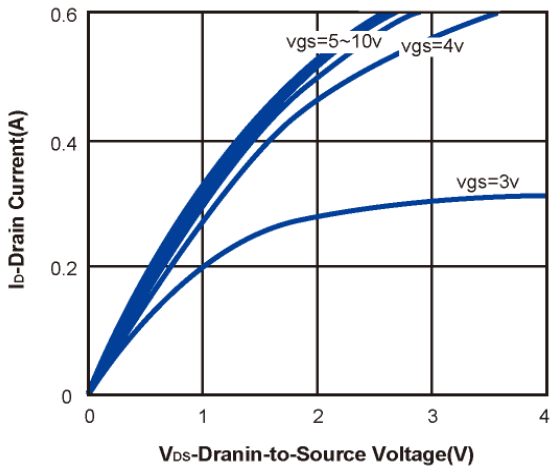
On Resistance vs. Gate-to-Source Voltage



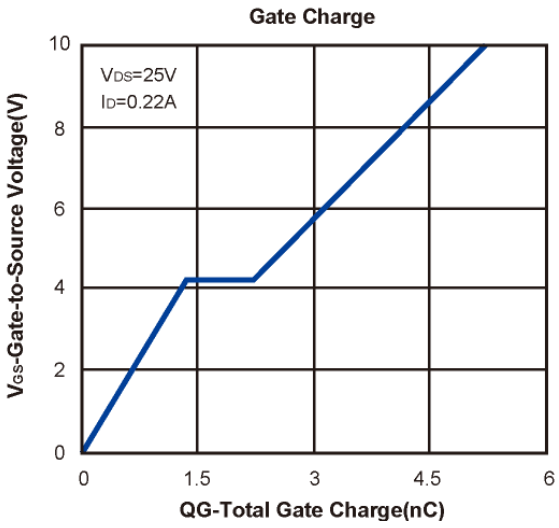
Threshold Voltage

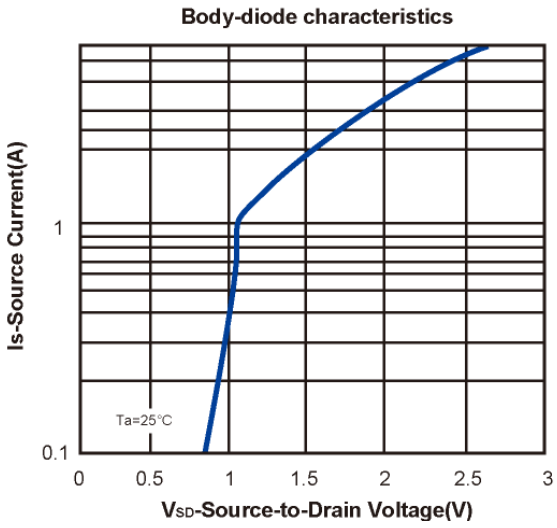


On-Region Characteristics

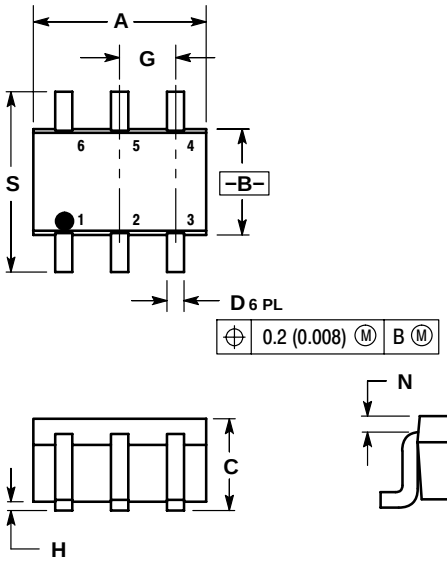


Typical Characteristics (T_J =25℃ Noted)





SC−88 (SOT−363)
CASE 419B−02



NOTES:
1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
2. CONTROLLING DIMENSION: INCH.
3. 419B−01 OBSOLETE, NEW STANDARD 419B−02.

	INCHES		MILLIMETERS	
DIM	MIN	MAX	MIN	MAX
A	0.071	0.087	1.80	2.20
B	0.045	0.053	1.15	1.35
C	0.031	0.043	0.80	1.10
D	0.004	0.012	0.10	0.30
G	0.026 BSC		0.65 BSC	
H	−−−	0.004	−−−	0.10
J	0.004	0.010	0.10	0.25
K	0.004	0.012	0.10	0.30
N	0.008 REF		0.20 REF	
S	0.079	0.087	2.00	2.20

STYLE 1:
PIN 1. SOURCE 2
2. GATE 2
3. DRAIN 1
4. SOURCE 1
5. GATE 1
6. DRAIN 2

SOLDERING FOOTPRINT*