

100V N-Channel Enhancement Mode MOSFET
MAIN CHARACTERISTICS

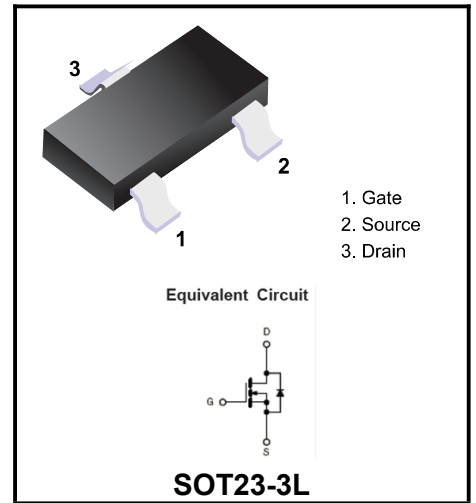
I_D	5A
V_{DSS}	100V
$R_{DS(on)-typ}(@V_{GS}=10V)$	$<115m\Omega$

Features

- ◆TrenchFET Power MOSFET
- ◆Load Switch for Portable Devices.
- ◆DC/DC Converter

Mechanical Data

- ◆SOT23-3L Small Outline Plastic Package.
- ◆Epoxy UL: 94V-0.
- ◆Mounting Position: Any.


Product Specification Classification

Part Number	Package	Marking	Pack
G1003A	SOT23-3L	G1003A	3000PCS/Tape

Maximum Ratings & Thermal Characteristics

Ratings at 25°C ambient temperature unless otherwise specified.

Parameters	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	100	V
Gate-Source Voltage	V_{GS}	± 20	V
Continuous Drain Current	I_D	5.0	A
Pulsed Drain Current(note1)	I_{DM}	24	
Power Dissipation	P_D	400	mW
Junction Temperature	T_J	150	°C
Storage Temperature	T_{stg}	-55-+150	°C
Thermal Resistance From Junction to Ambient (note 2)	$R_{\theta JA}$	312.5	°C/W

Electrical Characteristics

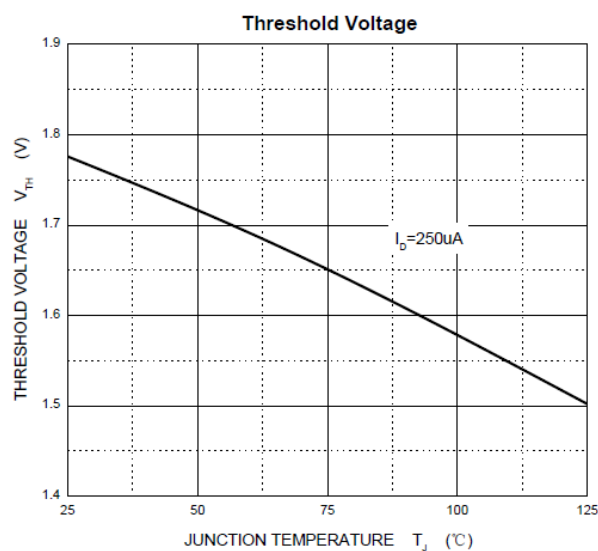
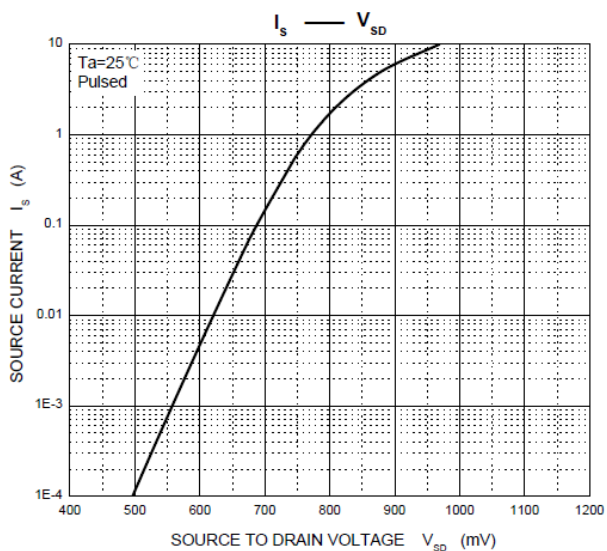
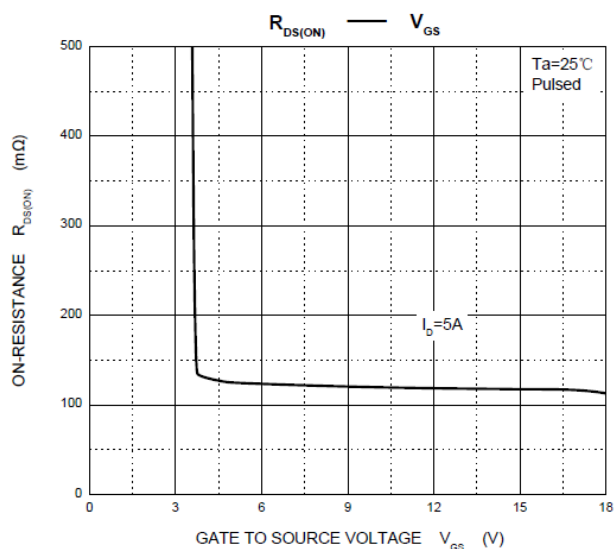
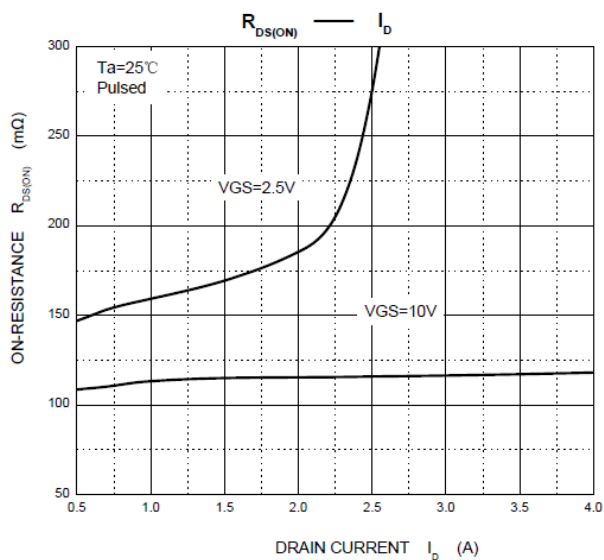
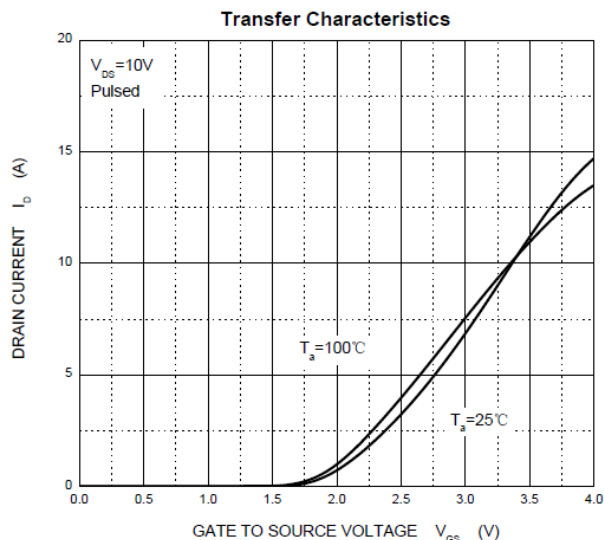
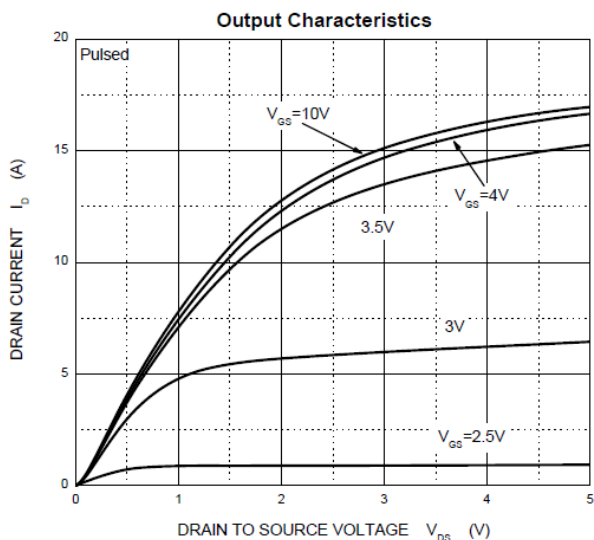
Ratings at 25°C ambient temperature unless otherwise specified.

Parameter	Symbols	Test Condition	Limits			Unit
			Min	Typ	Max	
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	$V_{GS}=0V, I_D=250\mu A$	100	-	-	V
Gate-Threshold voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=250\mu A$	1.0	1.6	3.0	V
Gate-body Leakage	I_{GSS}	$V_{DS}=0V, V_{GS}=\pm 20V$	-	-	± 100	nA
Zero Gate Voltage Drain current	I_{DSS}	$V_{DS}=80V, V_{GS}=0V$	-	-	1	uA
Drain-Source On-Resistance(note3)	$R_{DS(ON)}$	$V_{GS}=10V, I_D=5A$	-	-	115	mΩ
Forward trans conductance(note3)	g_{fs}	$V_{DS}=5V, I_D=2.9A$	3	-	-	S
Body diode voltage(note3)	V_{SD}	$I_S=3A, V_{GS}=0V$	-	-	1.2	V
Input capacitance	C_{iss}	$V_{DS}=25V, V_{GS}=0V, f=1MHz$	-	690	-	pF
Output capacitance	C_{oss}		-	120	-	
Reverse Transfer capacitance	C_{rss}		-	90	-	
Total gate charge	Q_g	$V_{DS}=30V, V_{GS}=10V, I_D=3A$	-	15.5	-	nC
Gate-source charge	Q_{gs}		-	3.2	-	
Gate-drain charge	Q_{gd}		-	4.7	-	
Turn-on Time	$t_{d(on)}$	$V_{DS}=30V, V_{GS}=10V, I_D=2A, R_G=2.5\Omega, R_L=15\Omega$	-	11	-	ns
Rise time	t_r		-	7.4	-	
Turn-off Time	$t_{d(off)}$		-	35	-	
Fall time	t_f		-	9.1	-	

Notes:

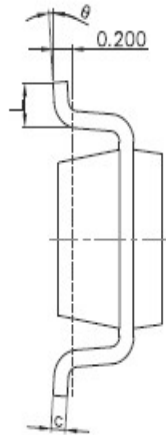
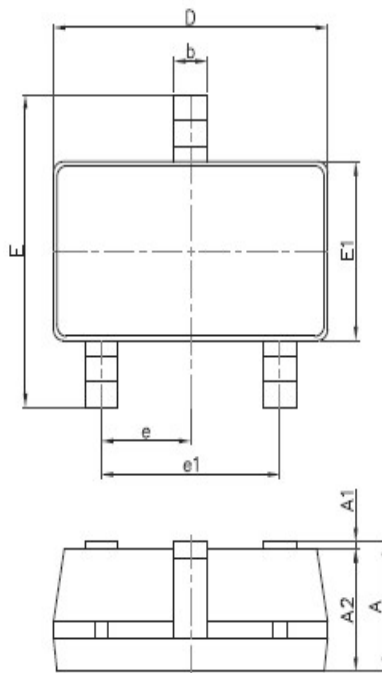
1. Repetitive rating : Pulse width limited by junction temperature.
2. Surface mounted on FR4 board, $t \leq 10s$
3. Pulse Test: Pulse Width $\leq 300\mu s$, Duty Cycle $\leq 2\%$.
4. Guaranteed by design, not subject to producing.

Typical characteristics



Package Outline

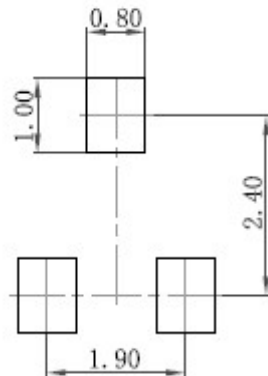
SOT23-3L



Symbol	Dimensions in Millimeters		Dimensions in Inches	
	Min.	Max.	Min.	Max.
A	1.050	1.250	0.041	0.049
A1	0.000	0.100	0.000	0.004
A2	1.050	1.150	0.041	0.045
b	0.300	0.500	0.012	0.020
c	0.100	0.200	0.004	0.008
D	2.820	3.020	0.111	0.119
E1	1.500	1.700	0.059	0.067
E	2.650	2.950	0.104	0.116
e	0.950(BSC)		0.037(BSC)	
e1	1.800	2.000	0.071	0.079
L	0.300	0.600	0.012	0.024

Precautions: PCB Design

Recommended land dimensions for SOT-23-3L diode. Electrode patterns for PCBs



Note:

1. Controlling dimension: in millimeters.
2. General tolerance: $\pm 0.05\text{mm}$.
3. The pad layout is for reference purposes only.

Summary of Packing Options

Package	Package Description	Packing Quantity	Industry Standard
SOT23-3L	Tape/Reel, 7" reel	3000	EIA-481-1