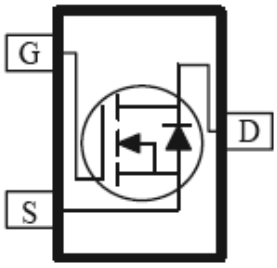
MSD23N58
N-Channel 60V (D-S) MOSFET



These miniature surface mount MOSFETs utilize a high cell density trench process to provide low RDS (on) and to ensure minimal power loss and heat dissipation. Typical applications are DC-DC converters and power management in portable and battery-powered products such as computers, printers, and PCMCIA cards, cellular and cordless telephones.

Key Features:

- Low rDS(on) provides higher efficiency and extends battery life
- Low thermal impedance copper leadframe
- SOT-23 saves board space
- Fast switching speed
- High performance trench technology

Absolute Maximum Ratings (Tc=25°C unless otherwise noted)

Parameter	Symbol	Value	Unit
Drain-Source Voltage	VDS	60	V
Gate-Source Voltage	VGS	±20	V
Continuous Drain Current @ TC=25°C	ID	2.8	A
Continuous Drain Current @ TC=70°C	ID	1.8	A
Pulsed Drain Current	IDM	±15	A
Continuous Source Current (Diode Conduction)	IS	1.7	A
Power Dissipation (TC=25°C)	PD	1.3	W
Power Dissipation (TC=100°C)		0.8	W
Operating Junction and Storage Temperature	Tj, Tstg	-55~+150	°C

Notes

a. Surface Mounted on 1” x 1” FR4 Board.

b. Pulse width limited by maximum junction temperature

Thermal characteristics (Tc=25°C unless otherwise noted)

Parameter	Symbol	Value	Unit
Maximum Junction-to-Ambient(RthJA)	t <= 5 sec	100	°C/W
	Steady State	106	

Characteristics (Tc=25°C, unless otherwise specified)					
Symbol	**Test Conditions**	**Min.**	**Typ.**	**Max.**	**Unit**
Static Characteristics					
VGS	VGS = VDS, ID = 250 uA	1.0	-	-	V
IGSS	VDS = 0 V, VGS = ± 20 V	-	-	±100	nA
IDSS	VDS = 48 V, VGS = 0 V	-	-	1.0	uA
	VDS = 48 V, VGS = 0 V, T J = 55oC	-	-	50.0	uA
ID(on)	VDS = 5 V, VGS = 10 V	10	-	-	A
RDS(on)	VGS = 10 V, ID = 3.1 A	-	-	92	mΩ
	VGS = 4.5 V, ID = 2.9 A	-	-	107	mΩ
gfs	VDS = 4.5V, ID = 3.1 A	-	8	-	S
VSD	IS = 1.7 A, VGS = 0 V	-	1.1	-	V
Dynamic Characteristics					
Qg	VDS = 30 V, VGS = 5 V, ID = 3.1 A	-	3.6	-	nC
Qgs		-	1.8	-	nC
Qgd		-	1.3	-	nC
td(on)	VDD = 30 V, RL = 30 Ω, ID = 1 A, VGEN = 10 V	-	10	-	nS
tr		-	10	-	nS
td(off)		-	20	-	nS
tf		-	10	-	nS

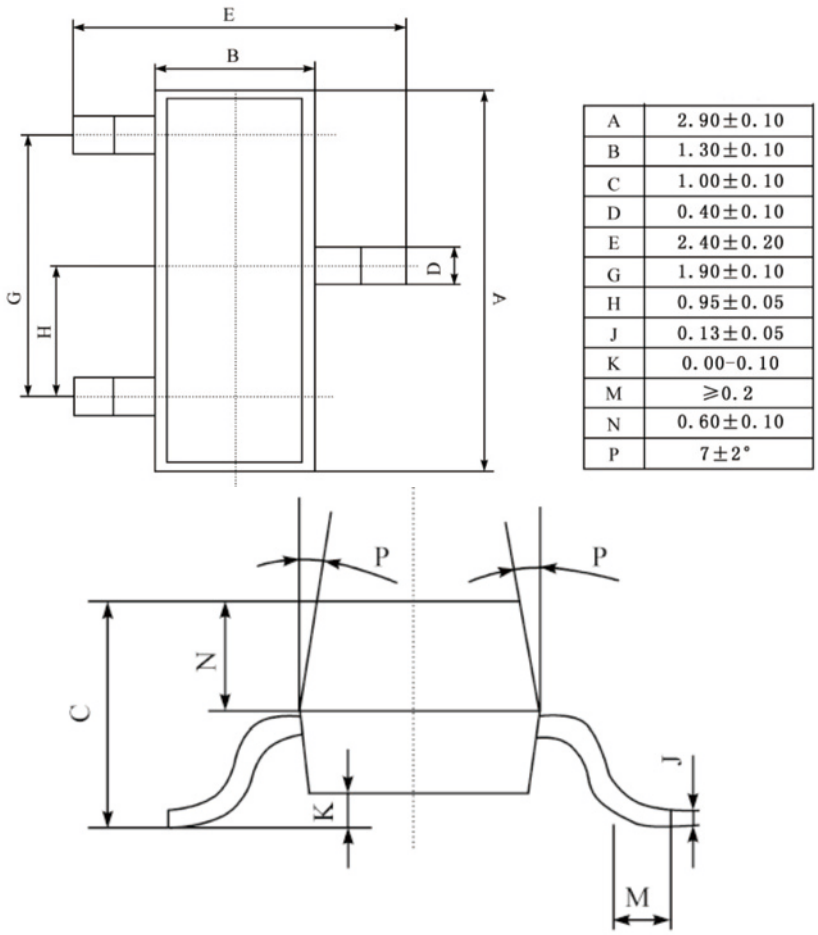
Notes

a. Pulse test: PW <= 300us duty cycle <= 2%.

b. Guaranteed by design, not subject to production testing.

- **Package Dimensions**

SOT-23



A	2.90±0.10
B	1.30±0.10
C	1.00±0.10
D	0.40±0.10
E	2.40±0.20
G	1.90±0.10
H	0.95±0.05
J	0.13±0.05
K	0.00-0.10
M	≥0.2
N	0.60±0.10
P	7±2°

Dimensions in millimeter