

MSKSEMI 美森科

SEMICONDUCTOR



ESD



TVS



TSS



MOV



GDT



PLED

BSS127-MS

Product specification

Features

- Low input capacitance
- High VDSS rating for power application
- Low input / output leakage

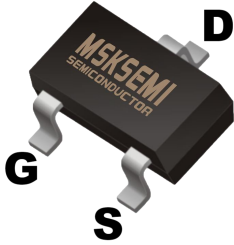
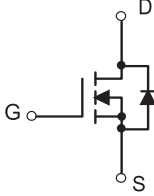

Mechanical Data

- Case: SOT-23
- Molding Compound:UL Flammability Classification Rating 94V-0
- Terminals: Matted-Tin plated;Solderable PerMIL-STD-202, Method 208

Typical Applications

- Motor control
- DC-DC converters
- Power management functions

Reference News

PACKAGE OUTLINE	Schematic diagram	MARKING
 SOT-23		

Maximum Ratings (@ TA = 25°C unless otherwise specified)

Parameter	Symbol	Value	Unit
Drain-to-Source Voltage	V _{DSS}	600	V
Gate-to-Source Voltage	V _{GSS}	±20	V
Continuous Drain Current *1 (V _{GS} = 10V, T _A = 25°C)	I _b	50	mA
Continuous Drain Current *1 (V _{GS} = 10V, T _A = 70°C)	I _b	40	mA
Continuous Drain Current *2 (V _{GS} = 10V, T _A = 25°C)	I _b	70	mA
Continuous Drain Current *2 (V _{GS} = 10V, T _A = 70°C)	I _b	55	mA
Continuous Drain Current *1 (V _{GS} = 5V, T _A = 25°C)	I _b	45	mA
Continuous Drain Current *1 (V _{GS} = 5V, T _A = 70°C)	I _b	35	mA
Continuous Drain Current *2 (V _{GS} = 5V, T _A = 25°C)	I _b	65	mA
Continuous Drain Current *2 (V _{GS} = 5V, T _A = 70°C)	I _b	50	mA
Pulsed Drain Current *3 (T _{SP} = 25°C)	I _{DM}	0.16	A

Thermal Characteristics

Parameter	Symbol	Value	Unit
Power Dissipation *1	P_D	0.61	W
Thermal Resistance Junction-to-Air *1	$R_{\theta JA}$	204	°C/W
Power Dissipation *2	P_D	1.25	W
Thermal Resistance Junction-to-Air *2	$R_{\theta JA}$	100	°C/W
Operating Junction Temperature Range	T_J	-55 ~ +150	°C
Storage Temperature Range	T_{STG}	-55 ~ +150	°C

Electrical Characteristics (@ $T_A = 25^\circ\text{C}$ unless otherwise specified)

Symbol	Parameter	Test Condition	Min.	Typ.	Max.	Unit
Static Characteristics *4						
V _{DSS}	Drain-Source Breakdown Voltage	V _{GS} = 0V, I _D = 250μA	600	-	-	V
I _{DSS}	Zero Gate Voltage Drain Current	V _{DS} = 600V, V _{GS} = 0V	-	-	0.1	μA
I _{GSS}	Gate-Body Leakage Current	V _{GS} = ±20V, V _{DS} = 0V	-	-	±100	nA
On Characteristics *4						
R _{DS(ON)}	Static Drain-Source On-resistance	V _{GS} = 10V, I _D = 16mA	-	25	160	Ω
		V _{GS} = 5V, I _D = 16mA	-	30	190	Ω
V _{GS(th)}	Gate Threshold Voltage	V _{DS} = V _{GS} , I _D = 250μA	2	-	4	V
Dynamic Characteristics *5						
C _{ISS}	Input Capacitance	V _{GS} = 0V V _{DS} = 25V f = 1.0MHz	-	40	-	pF
C _{OSS}	Output Capacitance		-	15	-	
C _{RSS}	Reverse Transfer Capacitance		-	2	-	
Switching Characteristics						
t _{d(ON)}	Turn-on Delay Time	V _{DD} = 100V V _{GS} = 10V R _G = 25Ω I _D = 0.2A	-	30	-	ns
t _r	Turn-on Rise Time		-	10	-	
t _{d(OFF)}	Turn-Off Delay Time		-	53	-	
t _f	Turn-Off Fall Time		-	18	-	
Q _G	Total Gate-Charge	V _{DD} = 480V I _D = 0.2A V _{GS} = 10V	-	10	-	nC
Q _{GS}	Gate to Source Charge		-	1.5	-	
Q _{GD}	Gate to Drain (Miller) Charge		-	6	-	
Source-Drain Diode Characteristics*4						
V _{SD}	Diode Forward Voltage	I _{SD} = 16mA, V _{GS} = 0V	-	-	1.5	V
t _{rr}	Reverse Recovery Time	I _F = 1A, V _{GS} = 0V	-	200	-	ns
Q _{rr}	Reverse Recovery Charge	dI/dt = 100A/μs	-	320	-	nC

Notes:

- Device mounted on FR-4 PCB with minimum recommended pad layout, single sided
- Device mounted on 1" x 1" FR-4 PCB with high coverage 2 oz. copper, single sided
- Repetitive rating, pulse width limited by junction temperature, 10 μs pulse, duty cycle = 1%
- Short duration pulse test used to minimize self-heating effect
- Guaranteed by design. Not subject to production testing

Ratings and Characteristics Curves (@ $T_A = 25^\circ\text{C}$ unless otherwise specified)

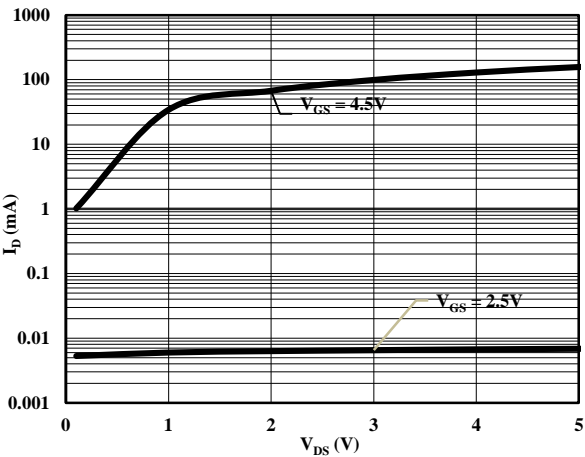


Fig 1 On-Region Characteristics

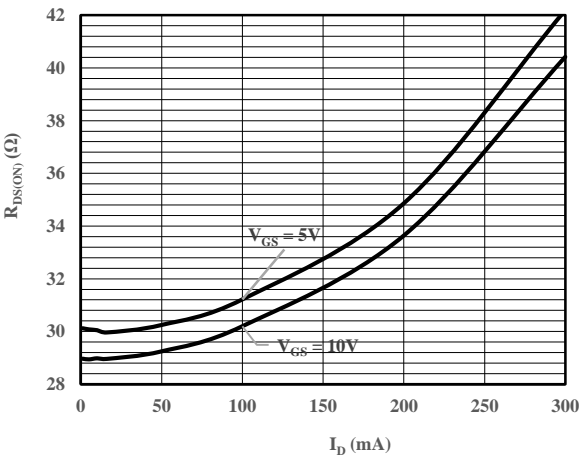


Fig 2 On-Resistance vs. Drain Current
and Gate Voltage

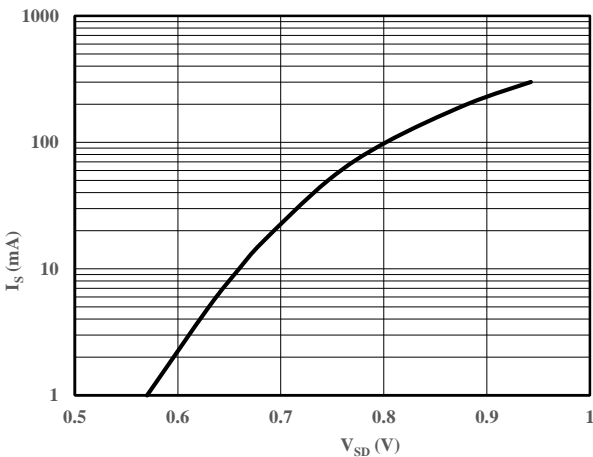
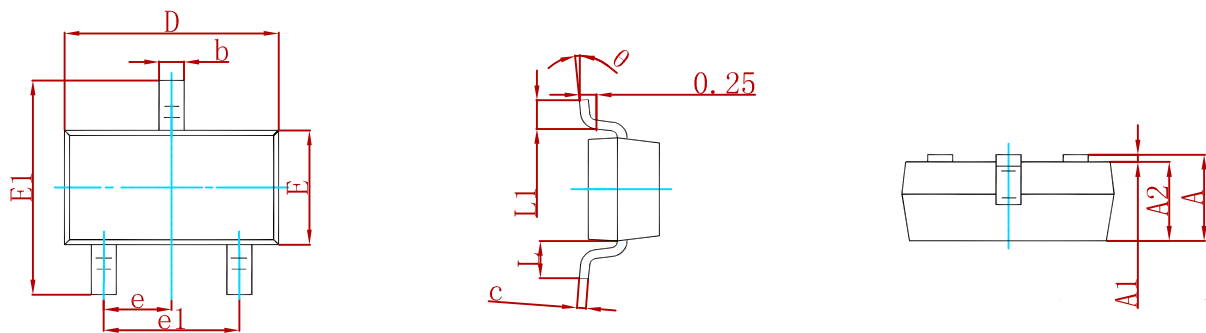


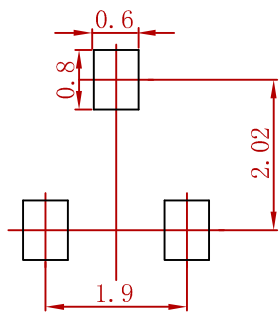
Fig 3 Body-Diode Characteristics

PACKAGE MECHANICAL DATA



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	0.900	1.150	0.035	0.045
A1	0.000	0.100	0.000	0.004
A2	0.900	1.050	0.035	0.041
b	0.300	0.500	0.012	0.020
c	0.080	0.150	0.003	0.006
D	2.800	3.000	0.110	0.118
E	1.200	1.400	0.047	0.055
E1	2.250	2.550	0.089	0.100
e	0.950 TYP		0.037 TYP	
e1	1.800	2.000	0.071	0.079
L	0.550 REF		0.022 REF	
L1	0.300	0.500	0.012	0.020
θ	0°	8°	0°	8°

Suggested Pad Layout



Note:
1.Controlling dimension:in millimeters.
2.General tolerance:± 0.05mm.
3.The pad layout is for reference purposes only.

REELSPECIFICATION

P/N	PKG	QTY
BSS127-MS	SOT-23	3000

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