

N-Channel MOSFET

Features

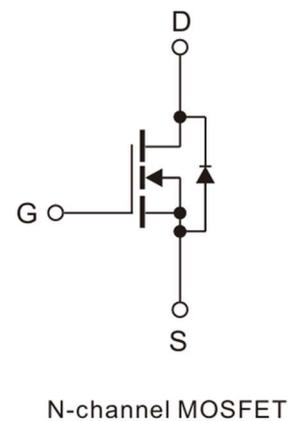
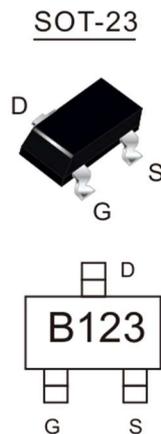
- TrenchFET Power MOSFET
- Voltage Controlled Small Signal Switch
- Halogen-Free & Lead-Free

Product Summary			
V_{DS}	$R_{DS(on)}$ (Ω) Typ	I_D (mA)	Q_g (Typ)
100V	3.0 @ 10V	200	1.8nc
	3.5 @ 4.5V	175	

Application

- Load Switch for Portable Devices

Marking information



Absolute Maximum Ratings (at $T_A = 25^\circ\text{C}$ unless otherwise specified)

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	100	V
Gate-Source Voltage	V_{GS}	± 20	V
Continuous drain current ($T_A=25^\circ\text{C}$)	I_D	0.2	A
Continuous drain current ($T_A=70^\circ\text{C}$)	I_D	0.16	A
Power Dissipation	P_D	0.35	W
Operating Junction	T_J	-55~150	$^\circ\text{C}$
Storage Temperature Range	T_{stg}	-55~150	$^\circ\text{C}$

Thermal Characteristics

Parameter	Symbol	Max.	Unit
Thermal Resistance from Junction to Ambient ¹⁾	$R_{\theta JA}$	357	$^\circ\text{C/W}$

Note:

1. Device mounted on FR-4 PCB, 1 inch x 0.85 inch x 0.062 inch.

Characteristics at T_J = 25°C unless otherwise specified

Parameter	Symbol	Min.	Typ.	Max.	Unit
STATIC PARAMETERS					
Drain-Source Breakdown Voltage at V _{GS} =0V, I _D =250μA	BV _{DSS}	100			V
Drain-Source Leakage Current at V _{DS} =100V, V _{GS} =0V	I _{DSS}			1	μA
Gate Leakage Current at V _{GS} =±20V, V _{DS} =0V	I _{GSS}			±0.1	μA
Gate-Source Threshold Voltage at V _{DS} =V _{GS} , I _D =250μA	V _{GS(th)}	1	1.8	2.5	V
Drain-Source On-State Resistance at V _{GS} =4.5V, I _D =175mA at V _{GS} =10V, I _D =200mA	R _{DS(on)}		3.5 3.0	5.5 5.0	Ω
DYNAMIC PARAMETERS					
Input Capacitance at V _{DS} =50V, V _{GS} =0V, f=1MHz	C _{iss}		14		pF
Output Capacitance at V _{DS} =50V, V _{GS} =0V, f=1MHz	C _{oss}		10		pF
Reverse Transfer Capacitance at V _{DS} =50V, V _{GS} =0V, f=1MHz	C _{rss}		5		pF
Gate charge total at V _{DS} =50V, V _{GS} =10V, I _D =0.2A	Q _g		1.8	2.5	nC
Gate to Source Charge at V _{DS} =50V, V _{GS} =10V, I _D =0.2A	Q _{gs}		-		nC
Gate to Drain Charge at V _{DS} =50V, V _{GS} =10V, I _D =0.2A	Q _{gd}		-		nC
Turn-On Delay Time at V _{DD} =50V, I _D =0.2A, R _{GEN} =6Ω, V _{GS} =10V	t _{d(on)}		1.7		nS
Turn-On Rise Time at V _{DD} =50V, I _D =0.2A, R _{GEN} =6Ω, V _{GS} =10V	t _r		9		nS
Turn-Off Delay Time at V _{DD} =50V, I _D =0.2A, R _{GEN} =6Ω, V _{GS} =10V	t _{d(off)}		17		nS
Turn-Off Fall Time at V _{DD} =50V, I _D =0.2A, R _{GEN} =6Ω, V _{GS} =10V	t _f		7		nS
Body-Diode PARAMETERS					
Drain-Source Diode Forward Voltage at I _S =0.2A, V _{GS} =0V	V _{SD}			1.2	V
Maximum Body-Diode Continuous Current	I _S			0.2	A

Electrical Characteristics Curves

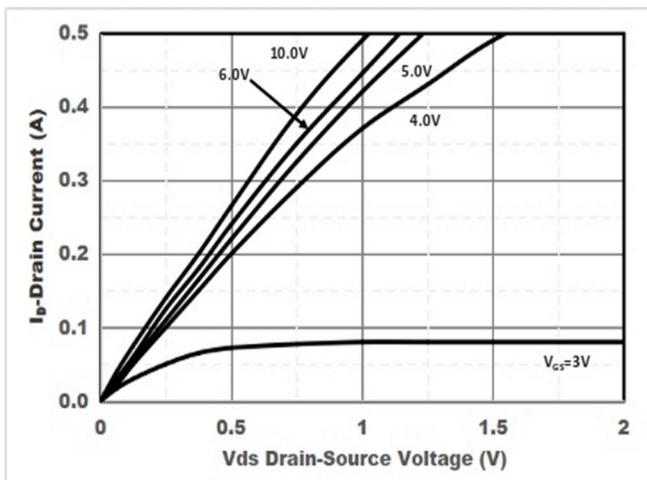


Figure1. Output Characteristics

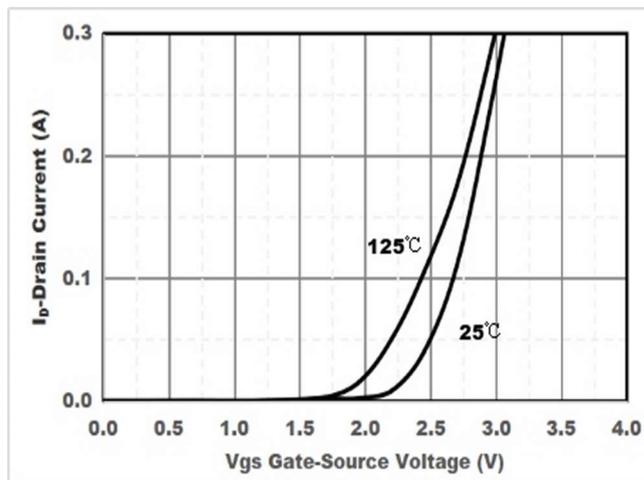


Figure2. Transfer Characteristics

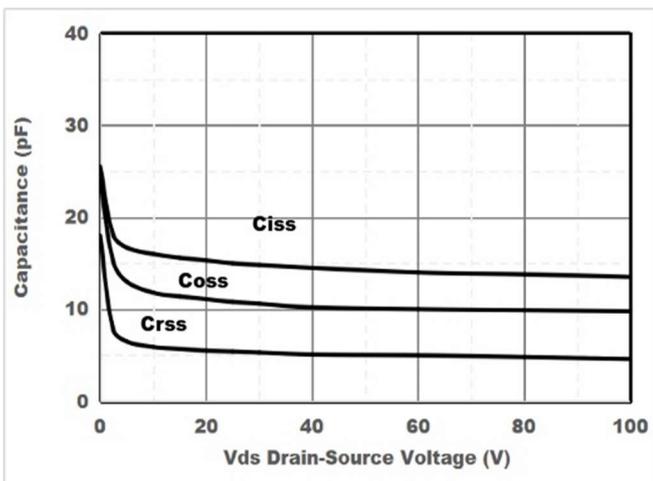


Figure3. Capacitance Characteristics

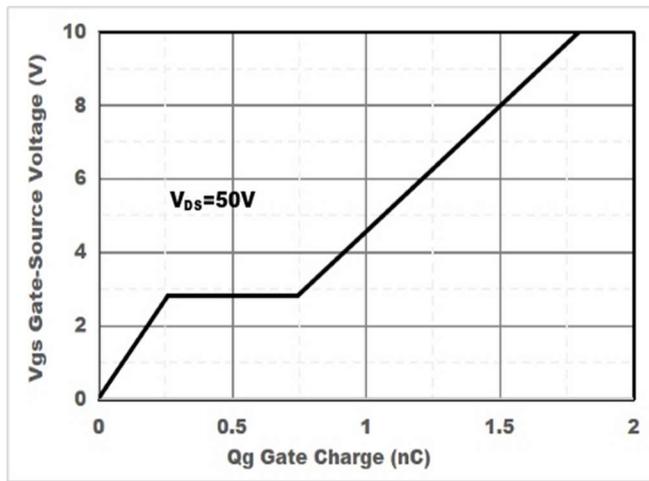


Figure4. Gate Charge

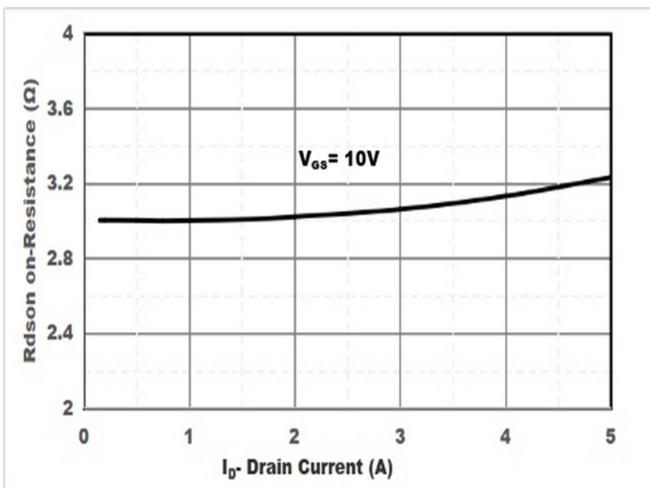


Figure5. Drain-Source on Resistance

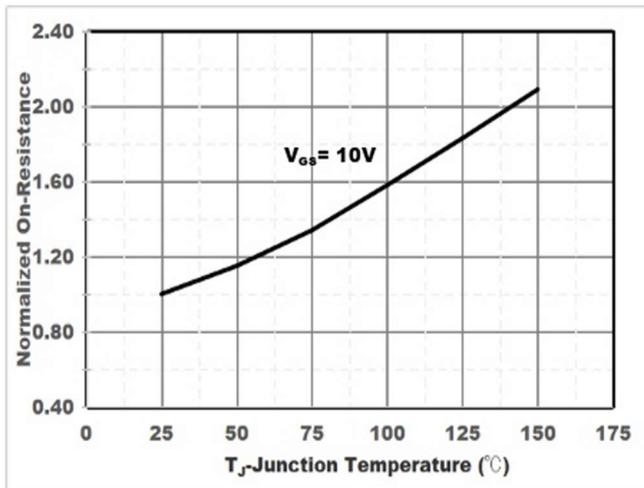


Figure6. Drain-Source on Resistance

Electrical Characteristics Curves

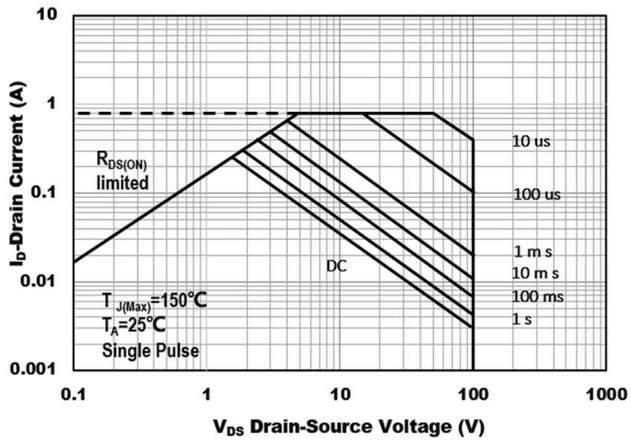


Figure7. Safe Operation Area

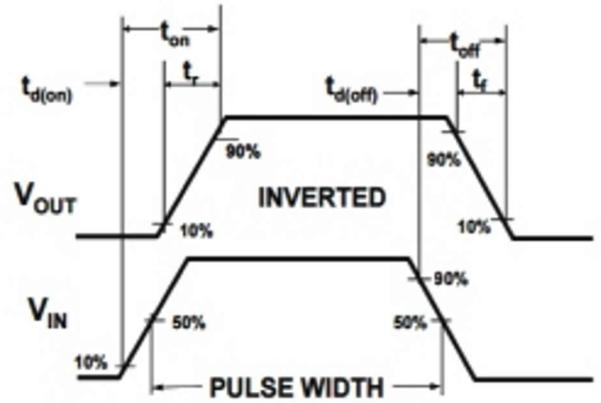
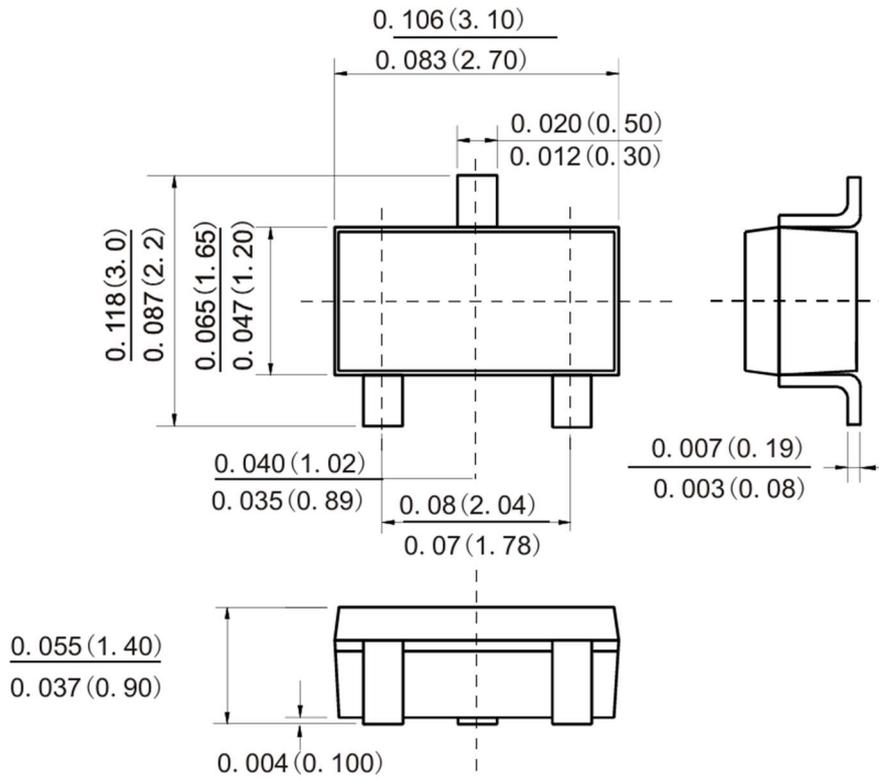


Figure8. Switching wave

Order Information

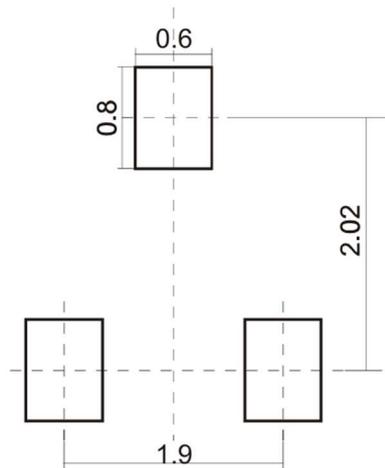
Part Number	Package	Quantity
ShBSS123	SOT-23	3000

Package Outline Dimensions (Units: mm) SOT-23



Dimensions in inches and (millimeters)

Suggested Pad Layout



Dimensions in millimeters