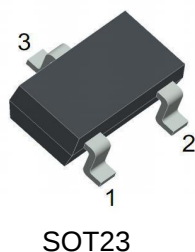


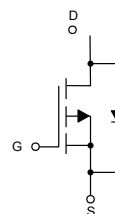
Features

- Low $R_{DS(ON)}$
- Epoxy Meets UL 94 V-0 Flammability Rating
- Moisture Sensitivity Level 1
- Halogen Free Available Upon Request By Adding Suffix "-HF"
- Lead Free Finish/RoHS Compliant ("P" Suffix Designates RoHS Compliant. See Ordering Information)

Internal Structure



1.GATE
2.SOURCE
3.DRAIN



Absolute Maximum Ratings (T_{amb}=25°C unless otherwise specified)

- Operating Junction Temperature Range: -55°C to +150°C
- Storage Temperature: -55°C to +150°C
- Thermal Resistance: 90°C/W Junction to Ambient^(Note 1)

Parameter	Symbol	Rating	Unit
Drain-Source Voltage	V_{DS}	-20	V
Gate-Source Voltage	V_{GS}	±10	V
Drain Current-Continuous	I_D	-4.2	A
Drain Current-Pulse ^(Note 2)	I_{DM}	-21	A
Power Dissipation	P_D	1.4	W

ELECTRICAL CHARACTERISTICS (Ta=25°C unless otherwise specified)

Parameter	Symbol	Test conditions	Min	Typ	Max	Unit
Static Characteristics						
Drain-Source Breakdown Voltage	V _{(BR)DSS}	V _{GS} =0V, I _D =-250μA	-20			V
Gate-Threshold Voltage	V _{GS(th)}	V _{DS} =V _{GS} , I _D =-250μA	-0.5		-0.9	V
Gate-Body Leakage Current	I _{GSS}	V _{GS} =±10V, V _{DS} =0V			±100	nA
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} =-20V, V _{GS} =0V			-1	μA
Drain-Source On-Resistance ^(Note 3)	R _{DS(on)}	V _{GS} =-4.5V, I _D =-2.7A		35	60	mΩ
		V _{GS} =-2.5V, I _D =-2.7A		46	80	
		V _{GS} =-1.8V, I _D =-2.7A		90		
Forward Tranconductance ^(Note 3)	g _{FS}	V _{DS} =-5V, I _D =-4.1A	6			S
Dynamic Characteristics						
Input Capacitance ^(Note 1,4)	C _{iss}	V _{DS} =-4V, V _{GS} =0V, f=1MHz		740		pF
Output Capacitance ^(Note 1,4)	C _{oss}			290		
Reverse Transfer Capacitance ^(Note 1,4)	C _{rss}			190		
Total Gate Charge ^(Note 1)	Q _g	V _{DS} =-4V, V _{GS} =-4.5V, I _D =-4.1A		7.8	15	nC
		V _{DS} =-4V, V _{GS} =-2.5V, I _D =-4.1A		4.5	9	
Gate-Source Chage ^(Note 1)	Q _{gs}			1.2		
Gage-Drain Charge ^(Note 1)	Q _{gd}			1.6		
Gate Resistance ^(Note 1,4)	R _g	f=1MHz	1.4	7	14	Ω
Turn-On Delay Time ^(Note 1,4)	t _{d(on)}	V _{DD} =-4V, V _{GEN} =-4.5V, R _L =1.2Ω, I _D =-3.3A, R _G =1Ω		13	20	ns
Turn-On Rise Time ^(Note 1,4)	t _r			35	53	
Turn-Off Delay Time ^(Note 1,4)	t _{d(off)}			32	48	
Turn-Off Fall Time ^(Note 1,4)	t _f			10	20	
Turn-On Delay Time ^(Note 1,4)	t _{d(on)}	V _{DD} =-4V, V _{GEN} =-8V, R _L =1.2Ω, I _D =-3.3A, R _G =1Ω		5	10	ns
Turn-On Rise Time ^(Note 1,4)	t _r			11	17	
Turn-Off Delay Time ^(Note 1,4)	t _{d(off)}			22	33	
Turn-Off Fall Time ^(Note 1,4)	t _f			16	24	
Drain-Source Body Diode Characteristics						
Continuous Source-Drain Diode Current	I _S	T _C =25°C			-4.2	A
Pulse Diode Forward Current ^(Note 3)	I _{SM}				-10	
Body Diode Voltage	V _{SD}	I _F =-3.3A		-0.8	-1.2	V

Note:

1. Guaranteed by Design, Not Subject to Production Testing.
2. Repetitive Rating: Pulse Width Limited by Max. Junction Temperature.
3. Pulse Test: Pulse Width $\leq 300\mu s$, Duty Cycle $\leq 2\%$.
4. These Parameters Have No Way to Verify.

Typical Performance Characteristics ($T_A=25^\circ\text{C}$ unless otherwise Specified)

Fig. 1 - On-Resistance Characteristics

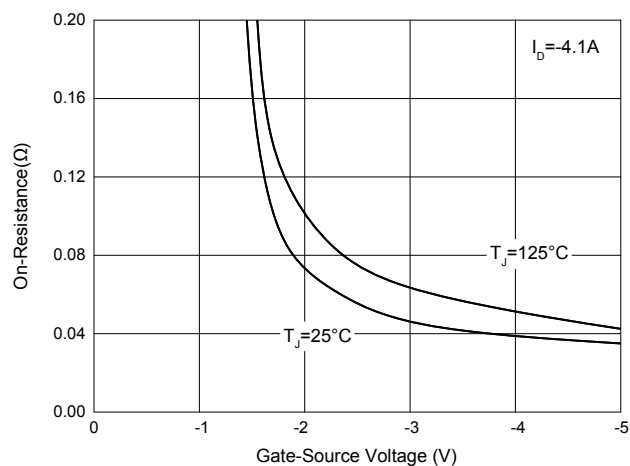


Fig. 2 - Drain Current Characteristics

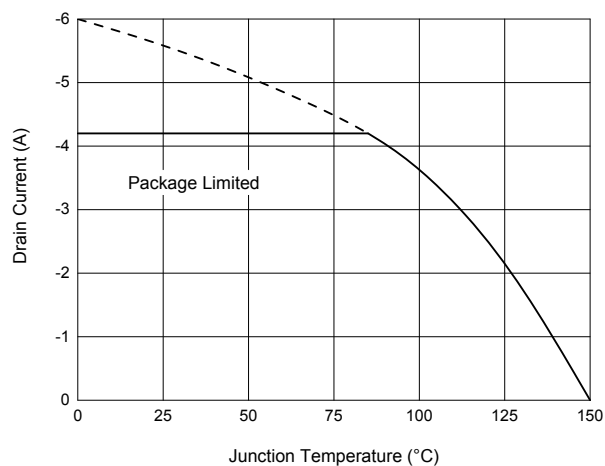


Fig. 3 - Output Characteristics

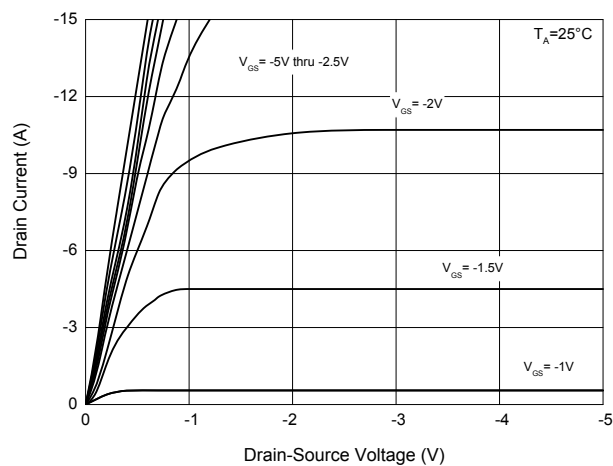
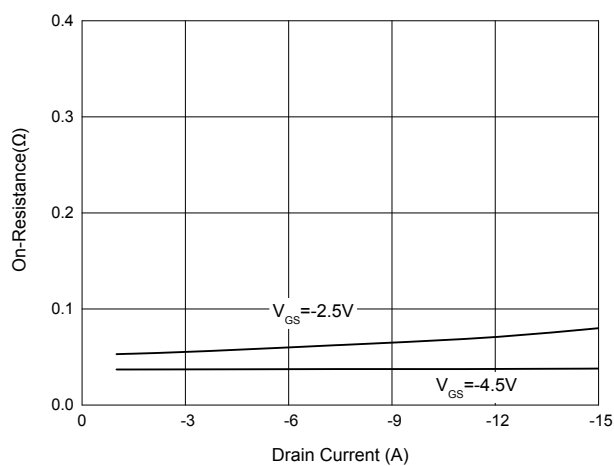
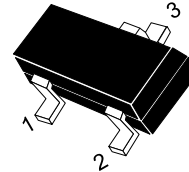
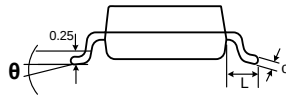
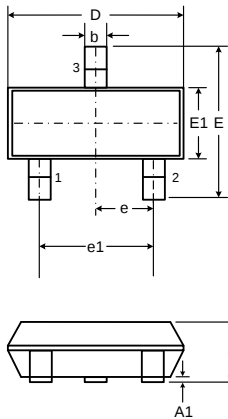


Fig. 4 - On-Resistance Characteristics



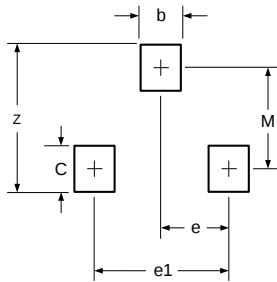
Outline Drawing – SOT23

PACKAGE OUTLINE



DIMENSIONS

SYMBOL	MILLIMETER		INCHES	
	MIN	MAX	MIN	MAX
A	0.90	1.15	0.035	0.045
A1	0.00	0.10	0.000	0.004
b	0.30	0.50	0.012	0.020
c	0.08	0.15	0.003	0.006
D	2.80	3.00	0.110	0.118
E	2.25	2.55	0.089	0.100
E1	1.20	1.40	0.047	0.055
e	0.95 BSC		0.0374 BSC	
e1	1.80	2.00	0.071	0.079
L	0.45	0.65	0.018	0.026
θ	0	8°	0	8°



DIMENSIONS		
DIM	INCHES	MILLIMETERS
M	0.080	2.02
C	0.032	0.80
Z	0.111	2.82
e	0.037 BSC	0.95 BSC
e1	0.075 BSC	1.90 BSC
b	0.032	0.80

Notes

1. Dimensioning and tolerances per ANSI Y14.5M, 1985.
2. Controlling Dimension: Inches
3. Pin 3 is the cathode (Unidirectional Only).
4. Dimensions are exclusive of mold flash and metal burrs.