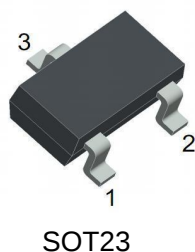


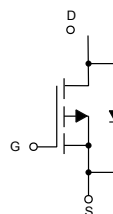
Features

- 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	$V_{(BR)DSS}$	$V_{GS}=0V, I_D=-250\mu A$	-20			V
Gate-Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=-250\mu A$	-0.5		-0.9	V
Gate-Body Leakage Current	I_{GSS}	$V_{GS}=\pm 10V, V_{DS}=0V$			± 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	m Ω
		$V_{GS}=-2.5V, I_D=-2.7A$		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	
					1.2	
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)	$t_{d(on)}$	$V_{DD}=-4V, V_{GEN}=-4.5V, R_L=1.2\Omega, I_D=-3.3A, R_G=1\Omega$		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)	$t_{d(on)}$	$V_{DD}=-4V, V_{GEN}=-8V, R_L=1.2\Omega, I_D=-3.3A, R_G=1\Omega$		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	$T_C=25^{\circ}C$			-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

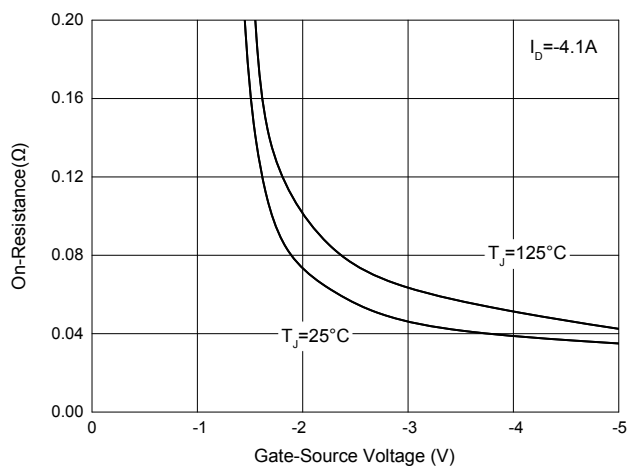


Fig. 2 - Drain Current Characteristics

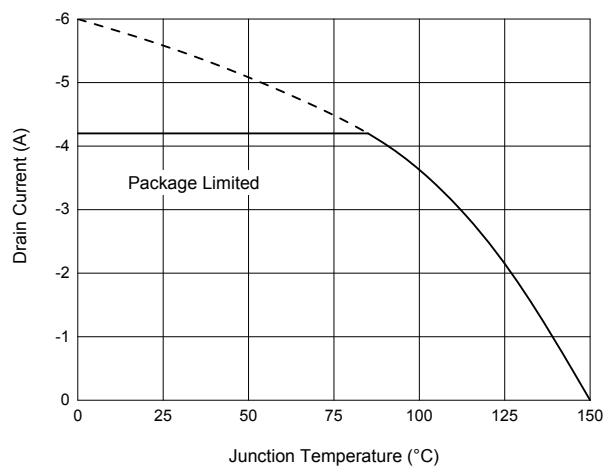


Fig. 3 - Output Characteristics

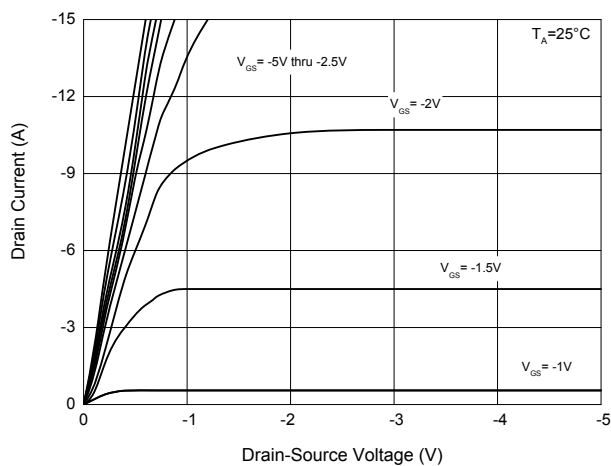
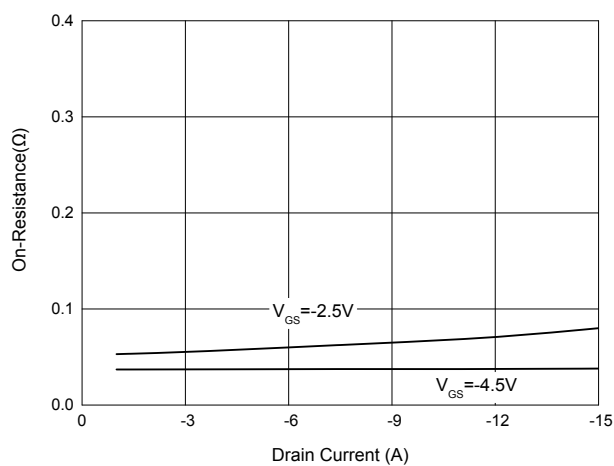
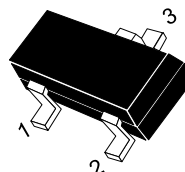
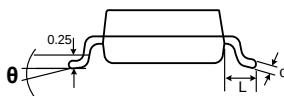
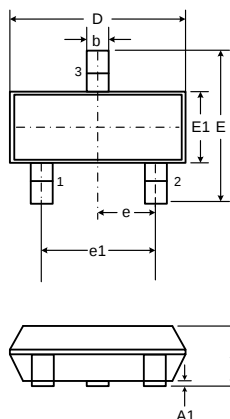


Fig. 4 - On-Resistance Characteristics



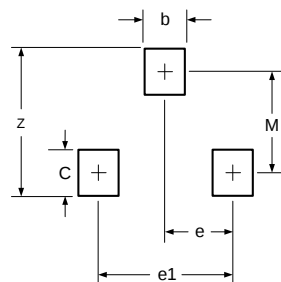
Outline Drawing – SOT23

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.