

$BV_{DSS}$	$R_{DS(ON)}$	$I_D$
30 V	42 m $\Omega$	4.2 A

SOT-23

Features

- $R_{DS(ON)}=48m\Omega @V_{GS}=4.5V$
- $R_{DS(ON)}=42m\Omega @V_{GS}=10V$
- ESD Protected 2KV HBM
- Green Device Available

Applications

- Case : SOT-23
- Terminals: Solderable per MIL-STD-750, Method 2026

Absolute Maximum Ratings  $T_A=25^\circ C$  unless otherwise noted

Symbol	Parameter	Rating	Units
$V_{DS}$	Drain-Source Voltage	30	V
$V_{GS}$	Gate-Source Voltage	$\pm 12$	V
$I_D$	Drain Current - Continuous	4.2	A
$I_{DM}$	Drain Current - Pulsed	16.8	A
$P_D$	Power Dissipation ( $T_a=25^\circ C$ )	1.25	W
$T_J$	Operating Junction Temperature Range	-50 to 150	$^\circ C$
$T_{STG}$	Storage Temperature Range	-50 to 150	$^\circ C$
Marking Code		A22	

Thermal Characteristics

Symbol	Parameter	Typ.	Max	Unit
$R_{\theta JA}$	Thermal Resistance Junction to Ambient	---	100	$^\circ C/W$

**Electrical Characteristics (T<sub>J</sub>=25°C, unless otherwise noted)****Off Characteristics**

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
BV <sub>DSS</sub>	Drain-Source Breakdown Voltage	V <sub>GS</sub> =0V, I <sub>D</sub> =250μA	30	---	---	V
I <sub>DSS</sub>	Drain-Source Leakage Current	V <sub>DS</sub> =30V, V <sub>GS</sub> =0V	---	---	1	μA
I <sub>GSS</sub>	Gate-Source Leakage Current	V <sub>GS</sub> =±12V, V <sub>DS</sub> =0V	---	---	±10	μA

**On Characteristics**

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
R <sub>DS(on)</sub>	Static Drain-Source On-Resistance	V <sub>GS</sub> =2.5V, I <sub>D</sub> =2.8A	---	---	55	mΩ
		V <sub>GS</sub> =4.5V, I <sub>D</sub> =3.5A	---	---	48	
		V <sub>GS</sub> =10V, I <sub>D</sub> =4.2A	---	---	42	
V <sub>GS(th)</sub>	Gate Threshold Voltage	V <sub>GS</sub> =V <sub>DS</sub> , I <sub>D</sub> =250μA	0.5	0.8	1.3	V

**Dynamic and switching Characteristics (NOTE 4)**

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
Q <sub>g</sub>	Total Gate Charge	V <sub>DS</sub> =15V, V <sub>GS</sub> =4.5V, I <sub>D</sub> =4.2A (NOTE 1、2)	---	5.1	---	nC
Q <sub>gs</sub>	Gate-Source Charge		---	0.8	---	
Q <sub>gd</sub>	Gate-Drain Charge		---	1.4	---	
T <sub>d(on)</sub>	Turn-On Delay Time	V <sub>DD</sub> =15V, V <sub>GS</sub> =10V, R <sub>G</sub> =3Ω, I <sub>D</sub> =1A (NOTE 1、2)	---	2.8	---	ns
T <sub>r</sub>	Rise Time		---	22	---	
T <sub>d(off)</sub>	Turn-Off Delay Time		---	21	---	
T <sub>f</sub>	Fall Time		---	16	---	
C <sub>iss</sub>	Input Capacitance	V <sub>DS</sub> =15V, V <sub>GS</sub> =0V, F=1MHz	---	421	---	pF
C <sub>oss</sub>	Output Capacitance		---	43	---	
C <sub>riss</sub>	Reverse Transfer Capacitance		---	35	---	

**Drain-Source Diode Characteristics and Ratings**

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
I <sub>S</sub>	Continuous Source Current	V <sub>G</sub> =V <sub>D</sub> =0V, Force Current	---	---	1.5	A
V <sub>SD</sub>	Diode Forward Voltage	V <sub>GS</sub> =0V, I <sub>S</sub> =1A	---	---	1.2	V

## NOTES :

1. Pulse width ≤ 300μs, duty cycle ≤ 2%.
2. Essentially independent of operating temperature typical characteristics.
3. The maximum current rating is package limited.
4. Guaranteed by design, not subject to production testing.



Characteristics Curves

FIG. 1-On-Region Characteristics

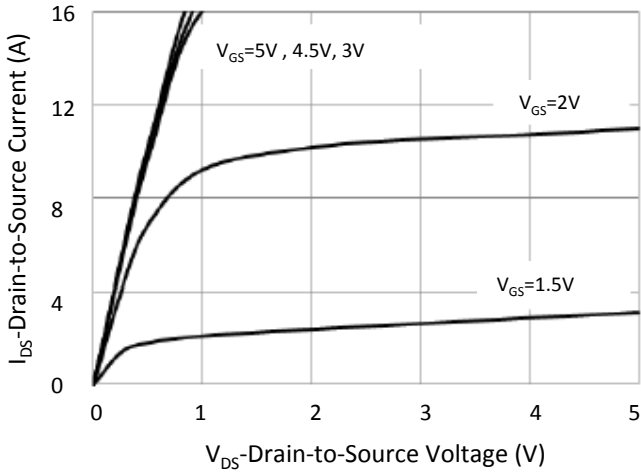


FIG. 2-Transfer Characteristics

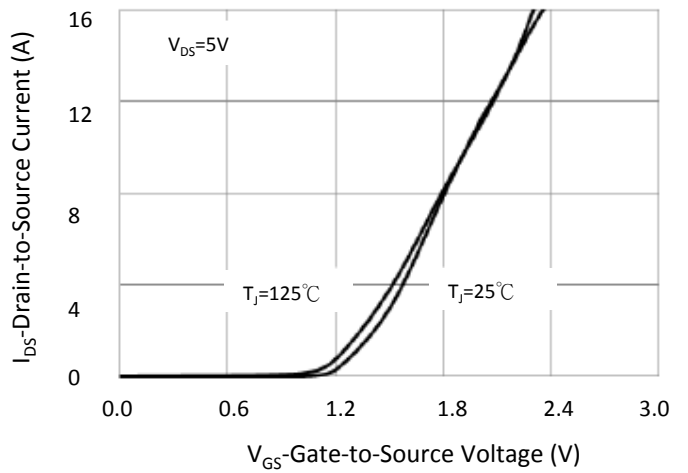


FIG. 3-On-Resistance vs Drain Current

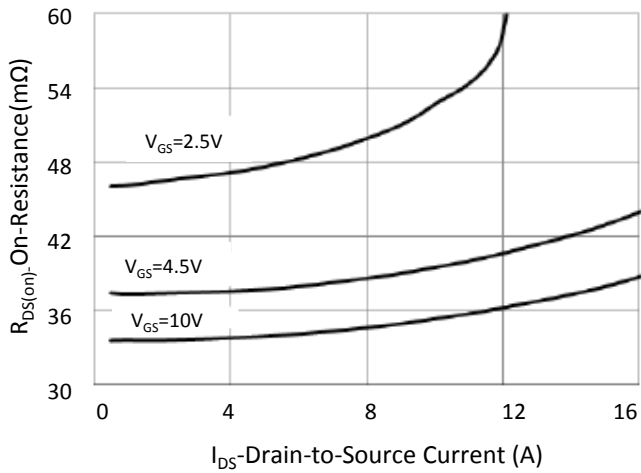


FIG. 4-On-Resistance vs Junction Temperature

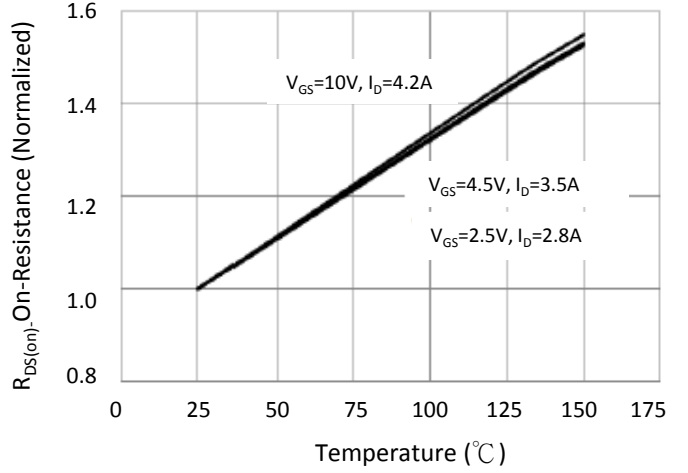


FIG. 5-On-Resistance vs Variation with Vgs

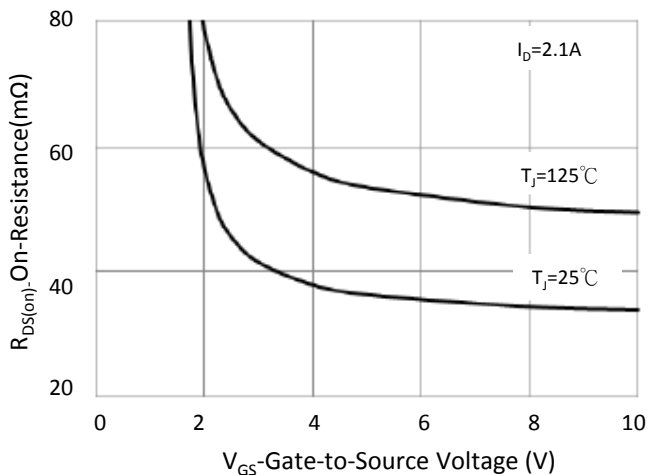
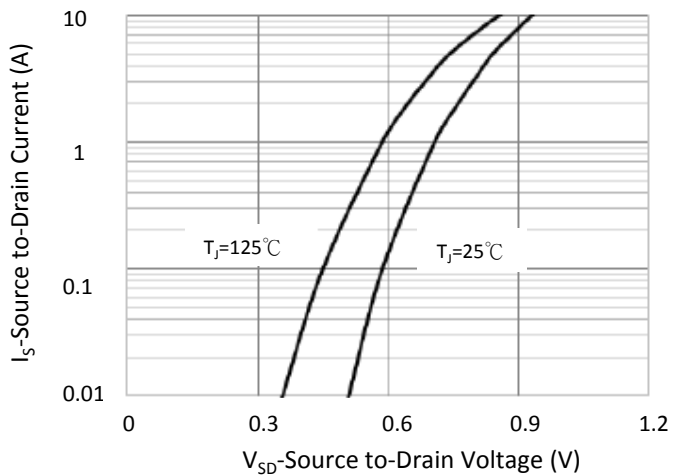
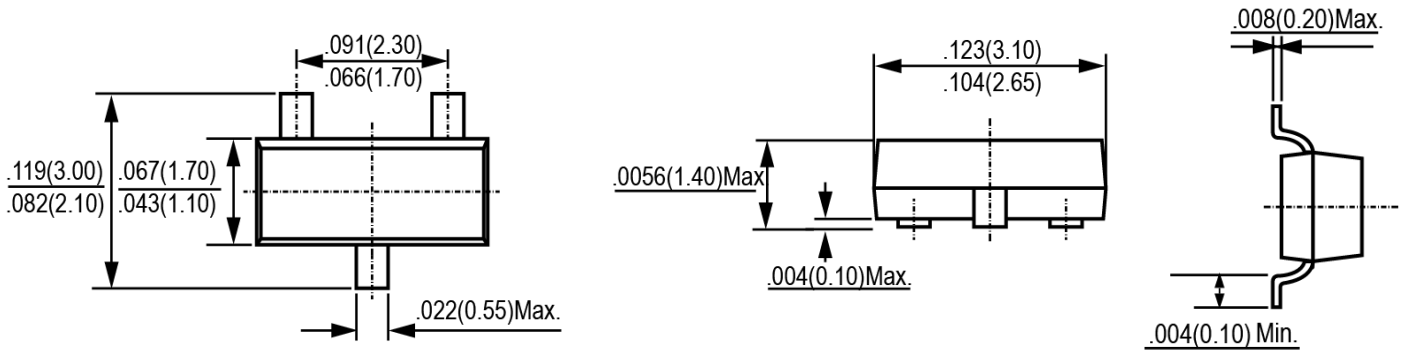


FIG. 6-Body Diode Characteristics





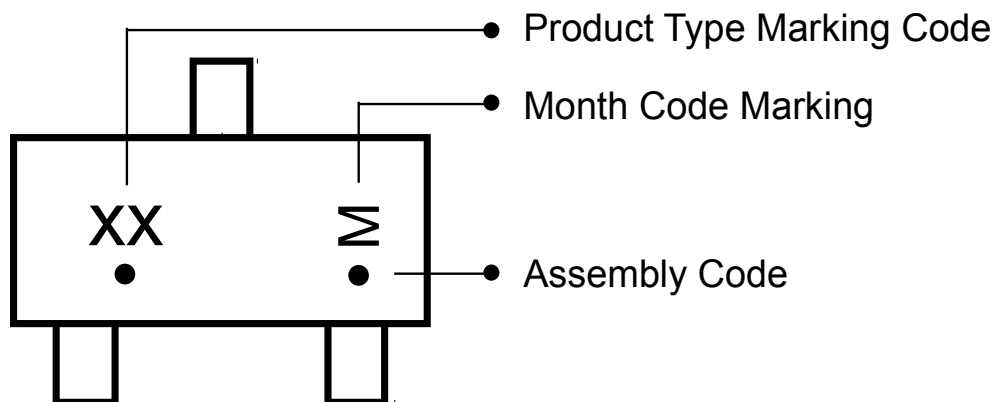
Package Outline Dimensions



SOT-23

Dimensions in inches and (millimeters)

Marking Information





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