

P-Channel Enhancement Mode MOSFET

Features

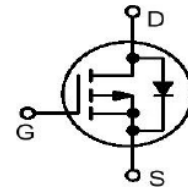
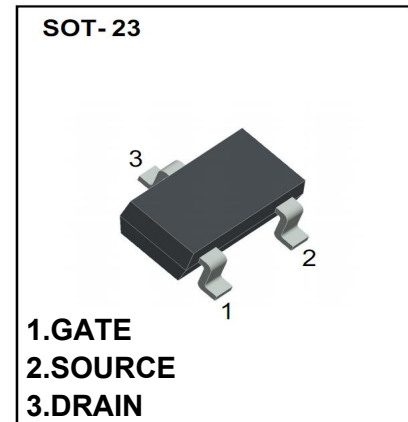
- $R_{DS(ON)} \leq 65m\Omega @ V_{GS} = -4.5V$.
- $R_{DS(ON)} \leq 100m\Omega @ V_{GS} = -2.5V$.
- Super High Density Cell Design For Extremely Low $R_{DS(ON)}$.
- Reliable and Rugged.
- Electrostatic Sensitive Devices.

Typical Applications

- Power Management In Note Book.
- Portable Equipment.
- Battery Powered System.

Mechanical Data

- Case: SOT-23
- Molding Compound, UL Flammability Classification Rating 94V-0.
- Terminals: Matte Tin Plated Leads, Solderable Per MIL-STD-202, Method 208.



Maximum Ratings (@ $T_A = 25^\circ C$ unless otherwise specified)

Parameter	Symbol	Value	Units
Drain-Source Voltage	V_{DSS}	-12	V
Gate -Source Voltage	V_{GSS}	± 8	V
Continuous Drain Current	I_D	$T_A = 25^\circ C$	-4.2
		$T_A = 70^\circ C$	-3.4
Pulsed Drain current	I_{DM}	-10	A
Power Dissipation	P_D	0.35	W

Thermal Characteristics

Parameter	Symbol	Limits	Unit
Thermal Resistance Junction to Ambient Air	$R_{\theta JA}$	357	$^\circ C/W$
Thermal Resistance Junction to Lead	$R_{\theta JL}$	214	$^\circ C/W$
Thermal Resistance Junction to Case	$R_{\theta JC}$	175	$^\circ C/W$
Operating Junction Temperature Range	T_J	-55 to +150	$^\circ C$
Storage Temperature Range	T_{STG}	-55 to +150	$^\circ C$

Electrical Characteristics (@T_A=25°C unless otherwise specified)

Symbol	Parameter	Test conditions	MIN	TYP	MAX	UNIT
OFF Characteristics						
V _{DSS}	Drain-Source Breakdown Voltage	V _{GS} =0V, I _D =-250μA	-12	-	-	V
I _{DSS}	Drain to Source Leakage Current	V _{DS} =-12V, V _{GS} =0V	-	-	-1	uA
I _{GSS}	Gate-body Leakage	V _{GS} =±8V, V _{DS} =0V	-	-	±100	nA
ON Characteristics						
R _{DS(ON)}	Static Drain-Source On-resistance	V _{GS} =-10V, I _D =-4.5A	-	32	53	mΩ
		V _{GS} =-4.5V, I _D =-4.2A	-	40	65	
		V _{GS} =-2.5V, I _D =-2A	-	55	100	
		V _{GS} =-1.8V, I _D =-1A	-	79	250	
V _{GS(TH)}	Gate Threshold Voltage	V _{DS} = V _{GS} , I _D =-250uA	-0.5	-	-0.9	V
Dynamic Characteristics						
Q _g	Total Gate Charge	V _{DS} =-16V	-	12.3	-	nC
Q _{gs}	Gate-Source Charge	V _{GS} =-4.5V	-	1.6	-	
Q _{gd}	Gate-Drain Charge	I _D =-4.2A	-	3.6	-	
C _{ISS}	Input capacitance	V _{DS} =-15V	-	1660	-	pF
C _{OSS}	Output capacitance	V _{GS} =0V	-	45	-	
C _{RSS}	Reverse transfer capacitance	f=1.0MHz	-	105	-	
t _{D(ON)}	Turn-On Delay Time	V _{DD} = -15V, I _D = -4.2A, R _L = 3.6Ω, V _{GEN} = -10V, R _{GEN} = 6Ω	-	5.9	-	ns
t _R	Rise Time		-	3.6	-	
t _{D(OFF)}	Turn-Off Delay Time		-	32.4	-	
t _F	Fall Time		-	2.6	-	
Source-Drain Diode Characteristics						
V _{SD}	Diode Forward Voltage	I _S =-1.2A, V _{GS} =0 V	-	-	-1.2	V
T _{rr}	Reverse Recovery Time	I _S =-4.2A, V _{GS} =0	-	27.7	-	ns
Q _{rr}	Reverse Recovery Charge	dI/dt=100A/us	-	22	-	nC

Ratings and Characteristic Curves ($T_A=25^\circ\text{C}$ unless otherwise noted)

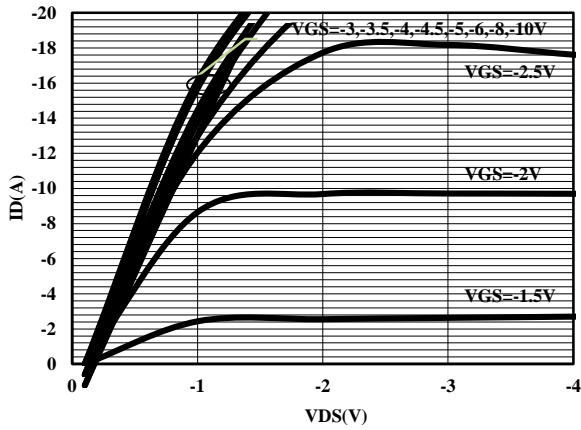


Fig.1- On-Region Characteristics

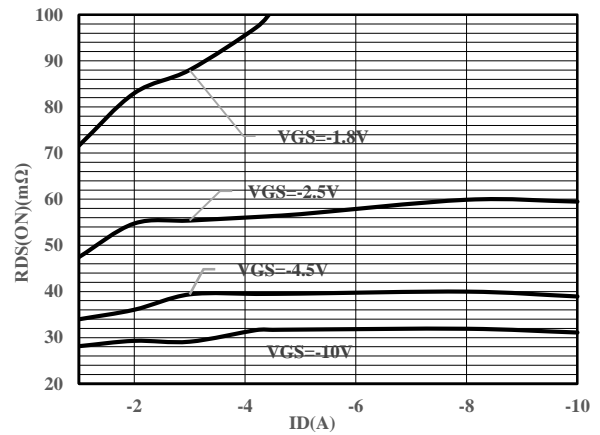


Fig.2-On-Resistance vs. Drain Current and Gate Voltage

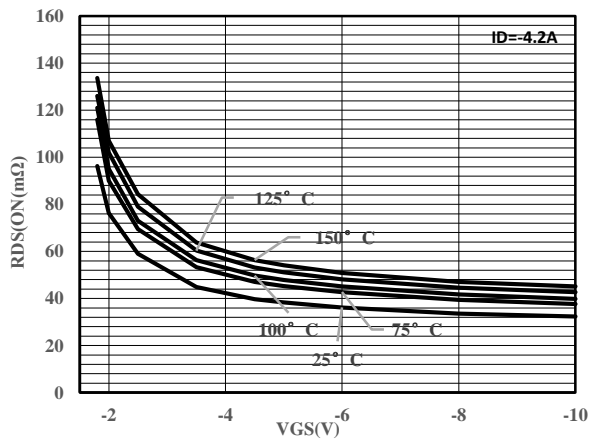


Fig.3-On-Resistance vs. Gate-Source Voltage

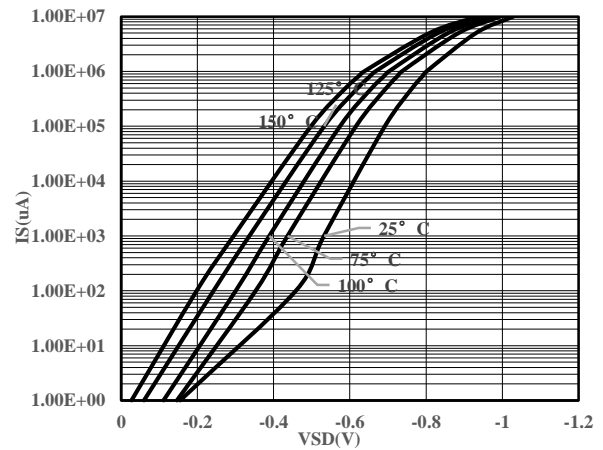


Fig.4- Body-Diode Characteristics

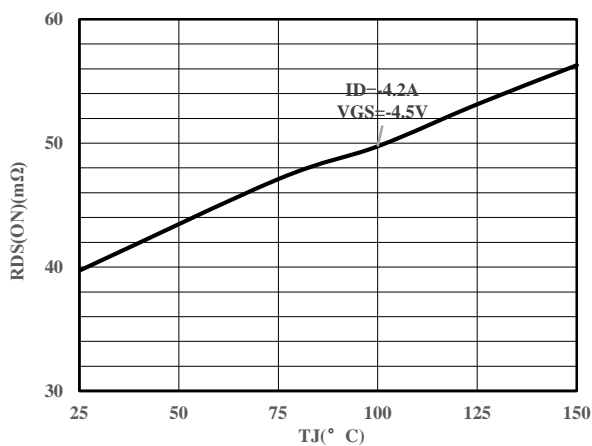


Fig.5-On-Resistance vs. Junction Temperature

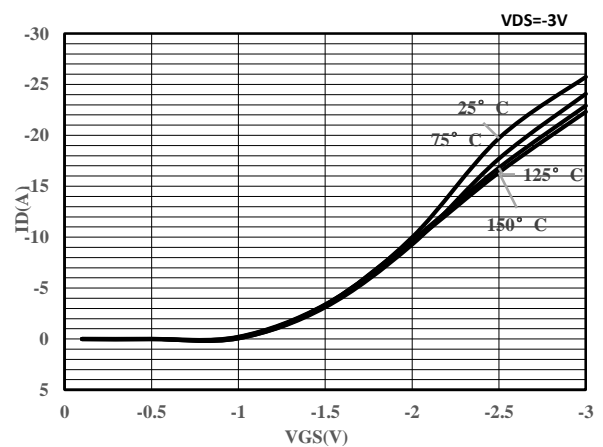


Fig.6-Transfer Characteristics

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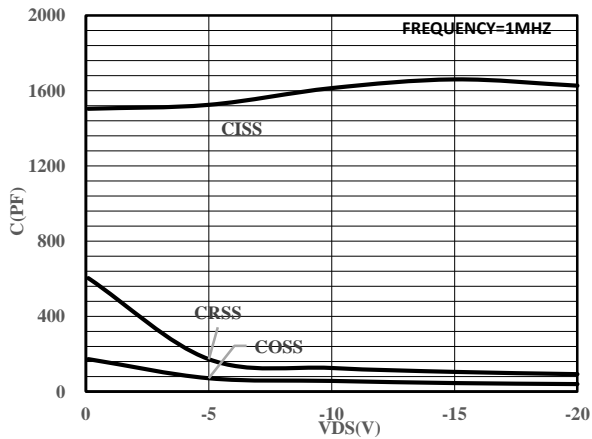


Fig.7-Capacitance Characteristics

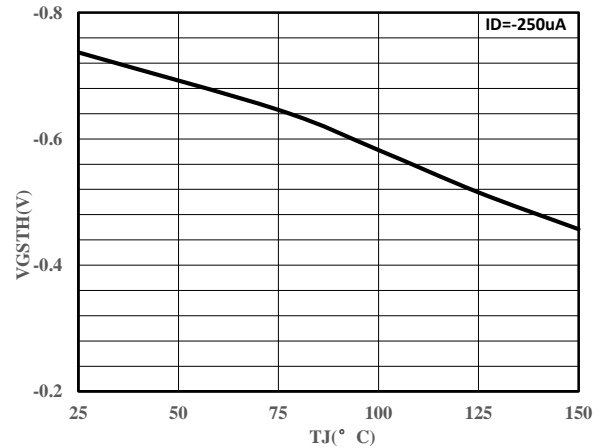


Fig.8- Gate Voltage vs. Junction Temperature

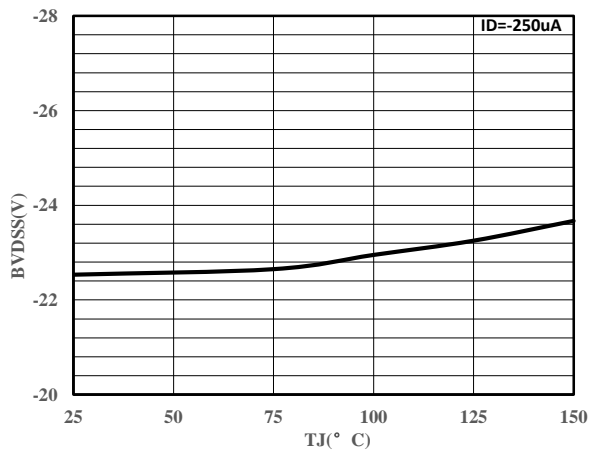
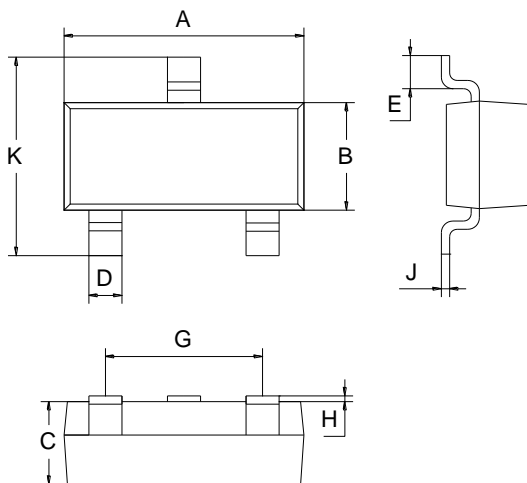


Fig.9- Drain-Source vs. Junction Temperature

Package Outline Dimensions(unit:mm)

SOT-23



SOT-23		
Dim	Min	Max
A	2.70	3.10
B	1.10	1.50
C	0.90	1.10
D	0.30	0.50
E	0.35	0.48
G	1.80	2.00
H	0.02	0.10
J	0.05	0.15
K	2.20	2.60