P-Channel Enhancement Mode MOSFET

Features

VDS	VGS	RDSon TYP	ID
-20	8V	60mR@4V5	3A
		75mR@2V5	

Applications

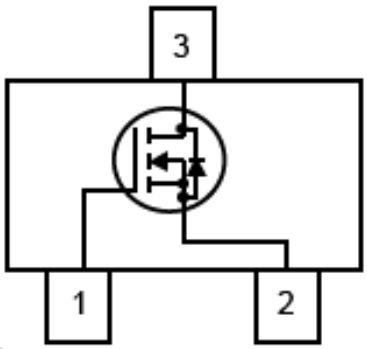
>Load Switch
>Portable Devices
>DCDC conversion

General Description

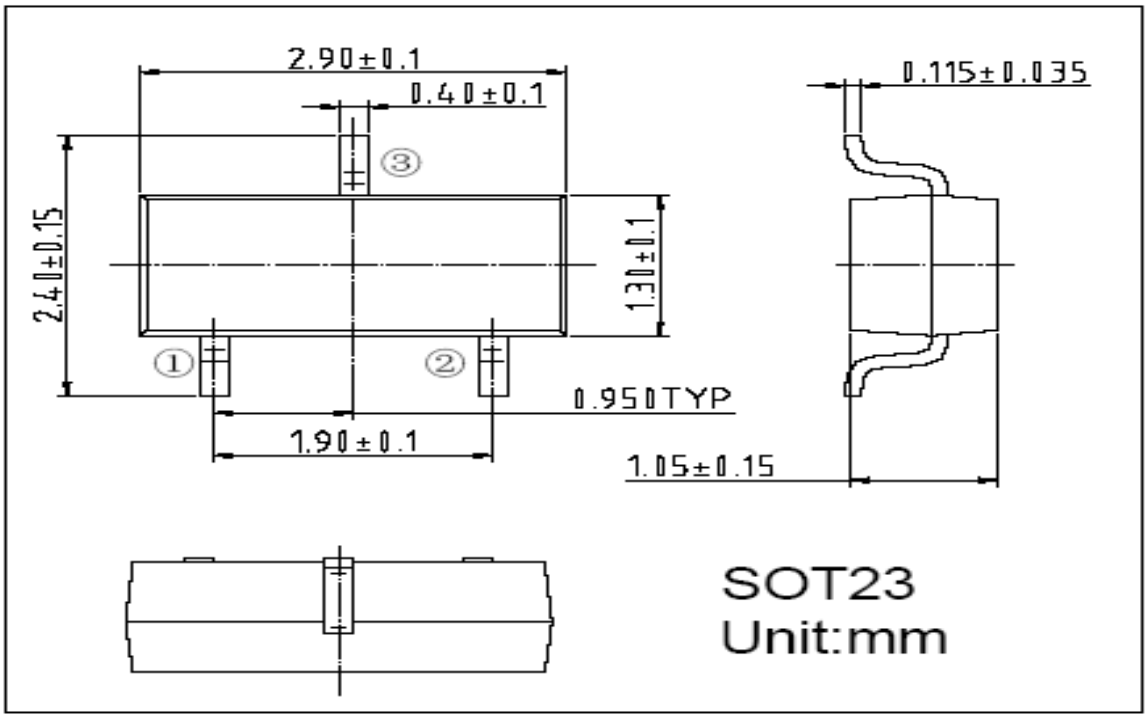
This device is produced with high cell density DMOS trench technology, which is especially used to minimize on-state resistance. This device particularly suits low voltage applications such as portable equipment, power management and other battery powered circuits, and low in-line power dissipation are needed in a very small outline surface mount package. Excellent thermal and electrical capabilities.

Pin configuration

Top View



Package Information



● Absolute Maximum Ratings @ TA = 25°C unless otherwise noted

Parameter		Symbol	Ratings	Unit
Drain-Source Voltage		V_{DSS}	-20	V
Gate-Source Voltage		V_{GSS}	±8	V
Drain Current (Continuous)		I_D	-3	A
Drain Current (Pulse)		I_{DM}	-20	A
Power Dissipation	25℃	P_{D25}	550	mW
	70℃	P_{D70}	350	
Operating Temperature/ Storage Temperature		T_J/T_{STG}	-55~150	℃

● Electrical Characteristics @ TA = 25°C unless otherwise noted

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
OFF CHARACTERISTICS						
Drain–Source Breakdown Voltage	$V_{(BR)DSS}$	V_{GS} = 0V, I_D=-250uA	-20	--	--	V
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS} = -20 V , V_{GS} = 0V	--	--	-1	uA
Gate–Body Leakage	I_{GSS}	V_{GS} =±8 V , V_{DS} = 0V	--	--	±100	nA
ON CHARACTERISTICS(2)						
Gate Threshold Voltage	$V_{GS(TH)}$	V_{DS} = V_{GS}, I_D = 50uA	-0.45	-0.75	-1.5	V
Drain–Source On-Resistance	$R_{DS(ON)}$	V_{GS} = 4.5 V, I_D = 3.6 A	--	60	130	mR
		V_{GS} = -2.5V , I_D = -2A	--	75	200	mR
Forward Transconductance	G_{FS}	V_{DS} = 5 V, I_D = 3.6 A	--	6.5	--	S
DYNAMIC CHARACTERISTICS						
Input Capacitance	C_{ISS}	V_{DS} = -6V , V_{GS} = 0V f = 1 MHz	--	415	--	pF
Output Capacitance	C_{OSS}		--	223	--	pF
Reverse Transfer Capacitance	C_{RSS}		--	87	--	pF
SWITCHING CHARACTERISTICS						
Turn-on Delay Time	$t_{d(on)}$	V_{DD} = -6V , R_L = 6R,I_D = -1.0A, V_{GEN} = -4.5V, R_G = 6R	--	13	25	nS
Turn-off Delay Time	$t_{d(off)}$		--	42	70	nS
DRAIN-SOURCE DIODE CHARACTERISTICS AND MAXIMUM RATINGS						
Drain-Source Diode Forward Voltage	V_{SD}	Is = -1.6A, V_{GS} = 0V	-0.5	--	-1.2	V

Notes:

1. Pulse width limited by maximum junction temperature.
2. Pulse test: PW≤300us, duty cycle≤2%.
3. For design AID only, not subject to production testing.
4. Switching time is essentially independent of operating temperature.

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● Typical Performance Characteristics

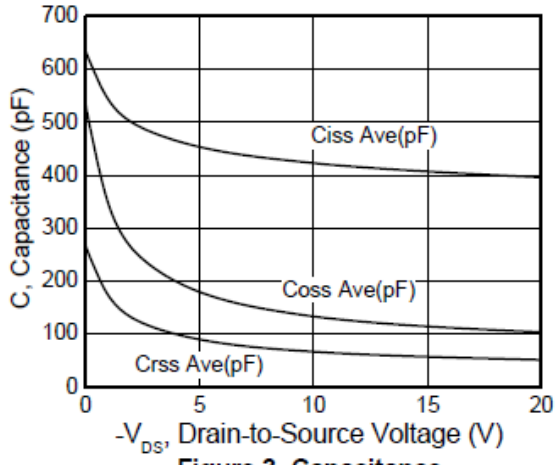

Figure 3. Capacitance

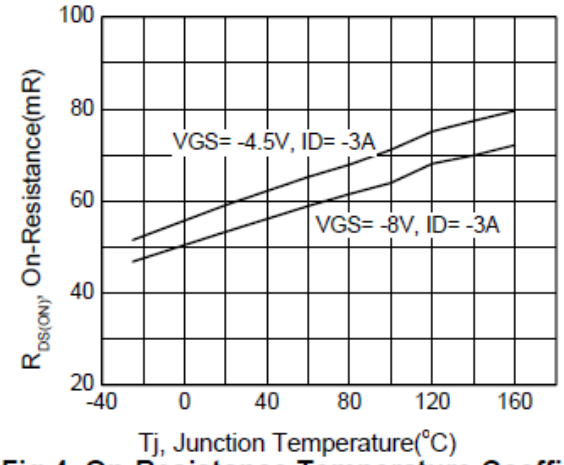

Fig 4. On-Resistance Temperature Coefficient

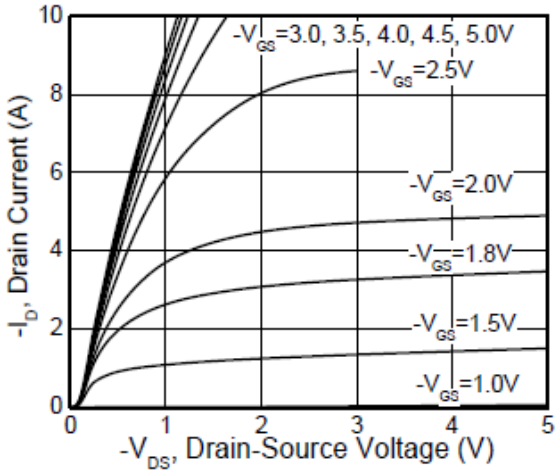

Figure 1. Output Characteristics

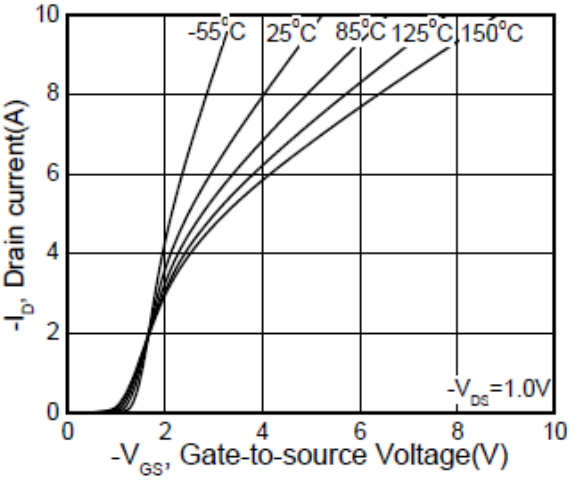

Figure 2. Transfer Characteristics

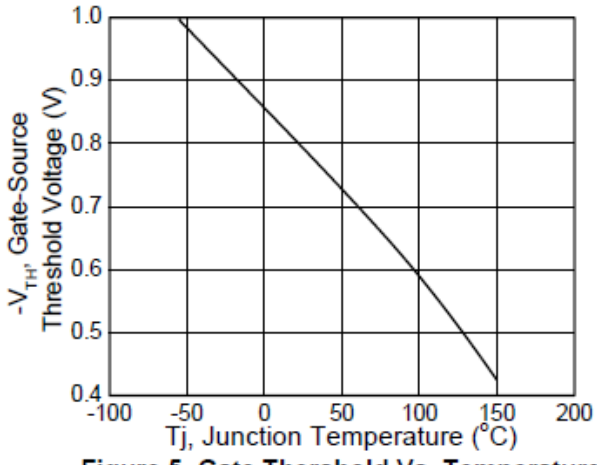

Figure 5. Gate Thershold Vs. Temperature

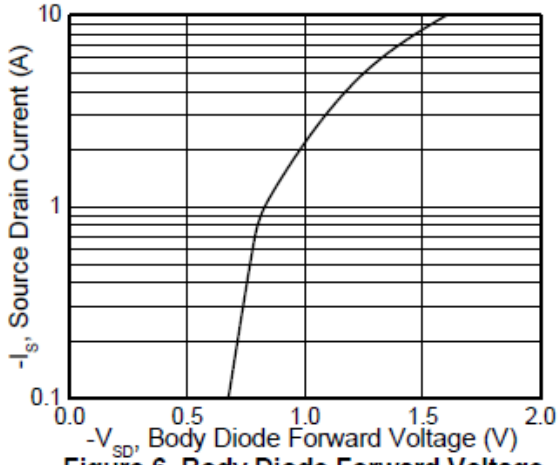

Figure 6. Body Diode Forward Voltage Vs. Source Current