

Description

These miniature surface mount MOSFETs reduce power loss conserve energy, making this device ideal for use in small power management circuitry.

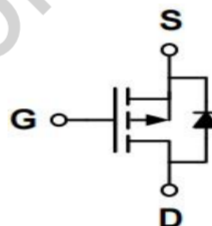
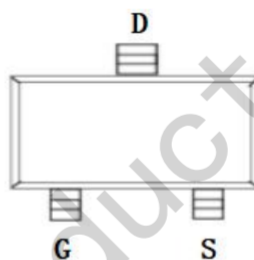
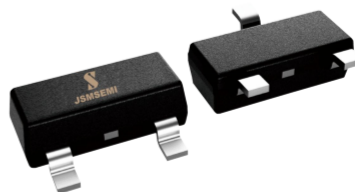
General Features

- $V_{DS} = -30V$, $I_D = -4.1A$
- $R_{DS(ON)} < 49 m\Omega$ @ $V_{GS} = -10V$
- $R_{DS(ON)} < 65m\Omega$ @ $V_{GS} = -4.5V$
- High Power and current handing capability
- Lead free product is acquired
- Surface Mount Package

Application

- PWM applications
- Load switch
- Power management
- Video monitor

PIN CONFIGURATION



Schematic diagram

Absolute Maximum Ratings (TA=25°C unless otherwise noted)

Symbol	Parameter	Value	Units
V_{DSS}	Drain-Source Voltage	-30	V
I_D	Drain Current - Continuous ($T_C = 25^\circ C$) - Continuous ($T_C = 70^\circ C$)	-4.1	A
		-3.2	A
I_{DM}	Drain Current - Pulsed (Note 1)	-15	A
V_{GSS}	Gate-Source Voltage	± 20	V
P_D	Power Dissipation ($T_C = 25^\circ C$)	1.2	W
T_J, T_{STG}	Operating and Storage Temperature Range	-55 to +150	$^\circ C$
T_L	Maximum lead temperature for soldering purposes, 1/8" from case for 5 seconds	300	$^\circ C$

Thermal Characteristic

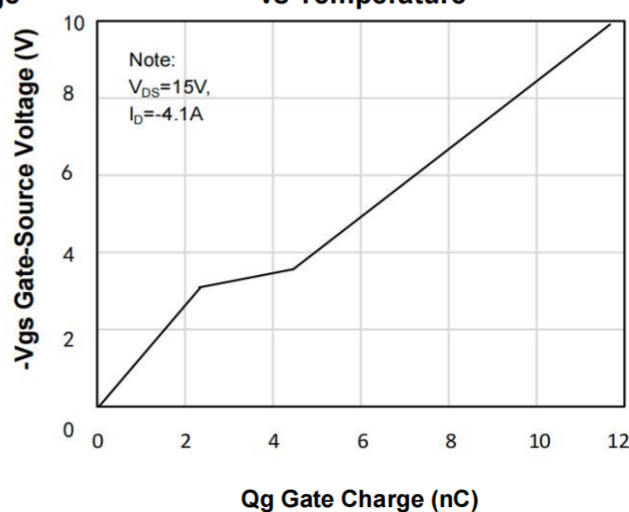
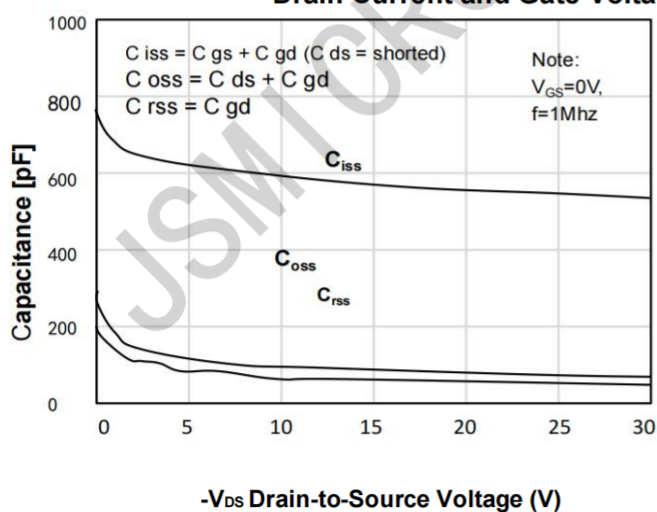
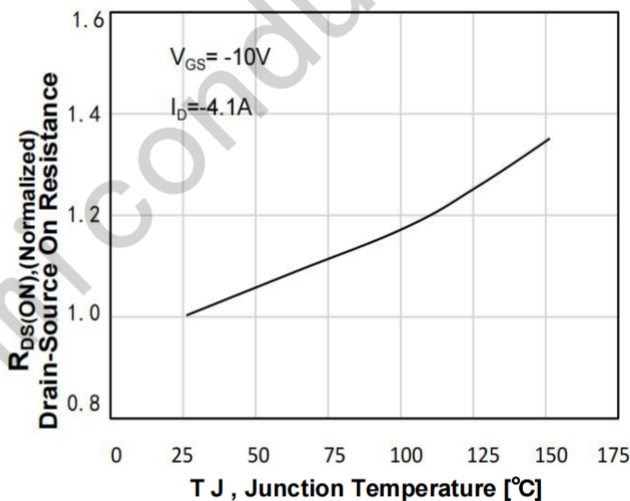
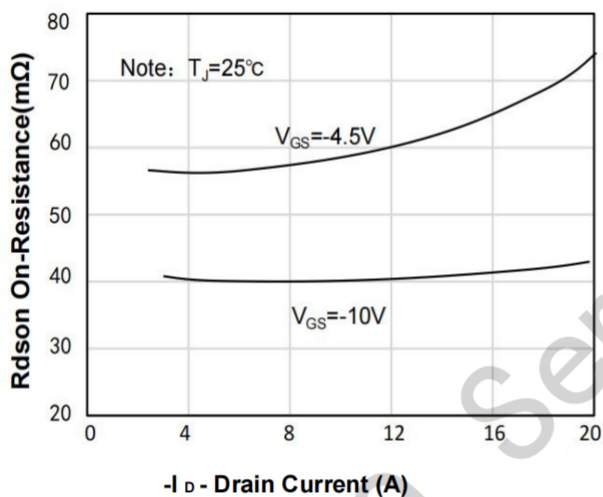
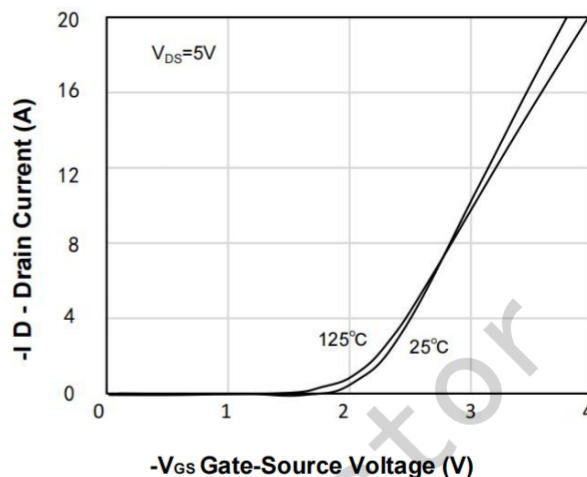
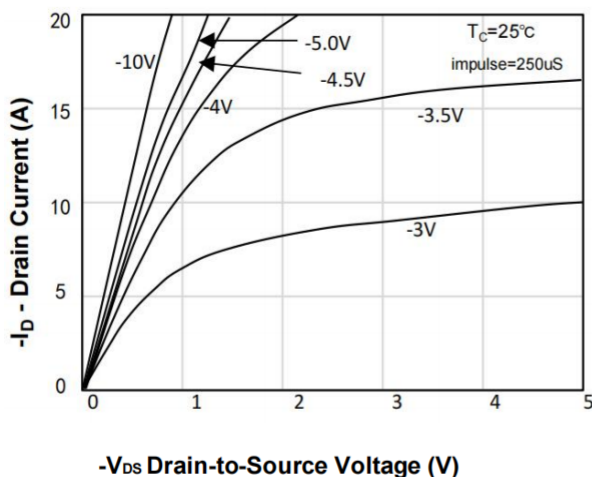
Thermal Resistance Junction-to- Ambient	$R_{\theta JA} (\leq 5 s)$	-	$^\circ C/W$
	$R_{\theta JA}$ (Steady-State)	105	$^\circ C/W$
Maximum junction-to-ambient	$R_{\theta JC}$	-	$^\circ C/W$

Electrical Characteristics (TA=25°C unless otherwise noted)

Symbol	Parameter	Limit	Min	Typ	Max	Unit
STATIC						
V(BR) DSS	Drain-source breakdown voltage	VGS =0V, ID =-250μ A	-30			V
VGS(th)	Gate threshold voltage	VDS =VGS,ID =-250μ A	-1	-1.5	-2.4	V
IGSS	Gate-source leakage current	VDS =0V, VGS = ± 20V			± 100	nA
IDSS	Zero gate voltage drain current	VDS =-30V, VGS =0V			-1	uA
RDS(ON)	Drain-source on-resistance	VGS =-10V, ID = -4.1A		36	49	mΩ
		VGS =-4.5V, ID = -3.5A		52	65	
DYNAMIC PARAMETERS						
Qg	Total Gate Charge	VDS =-15V, VGS =-10V, ID =-4.1A(Note 2)		11.65		nC
Qgs	Gate- Source Charge			2.32		
Qgd	Gate- Drain Charge			2.08		
Ciss	Input capacitance	VDS =-15V, VGS =0V, f= 1 MHz		572		nF
Coss	Output Capacitance			82		
Crss	Reverse Transfer Capacitance			70		
Rg	Gate Resistance	f= 1 MHz		-		Ω
td(on)	Turn- On Delay Time	VDD =-15V, VGEN=-10V ID =-3.5A, RG =2.5Ω(Note 2)		3.8		ns
tr	Rise Time			17.6		
td(off)	Turn- Off Delay Time			17.8		
tf	Fall Time			21.8		
IS	Maximum Continuous Drain-Source Diode Forward Current		-	-	-4.1	V
ISM	Maximum Pulsed Drain-Source Diode Forward Current		-	-	-16	A
VSD	Drain to Source Diode Forward Voltage,V GS = 0V, I SD =-4.1A,T J = 25°C		-	-	-1.2	V

Notes:

1. Repetitive Rating: Pulse Width Limited by Maximum Junction Temperature
2. Pulse Test: Pulse Width ≤ 300μs, Duty Cycles ≤ 0.5%



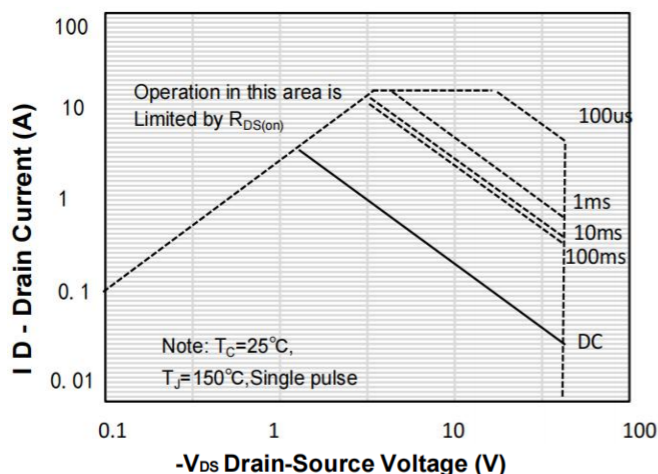


Figure 7. Maximum Safe Operating Area

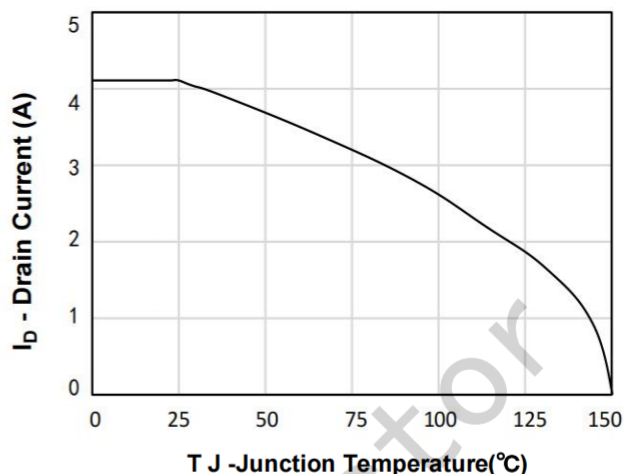


Figure 8. Maximum Continuous Drain Current vs Temperature

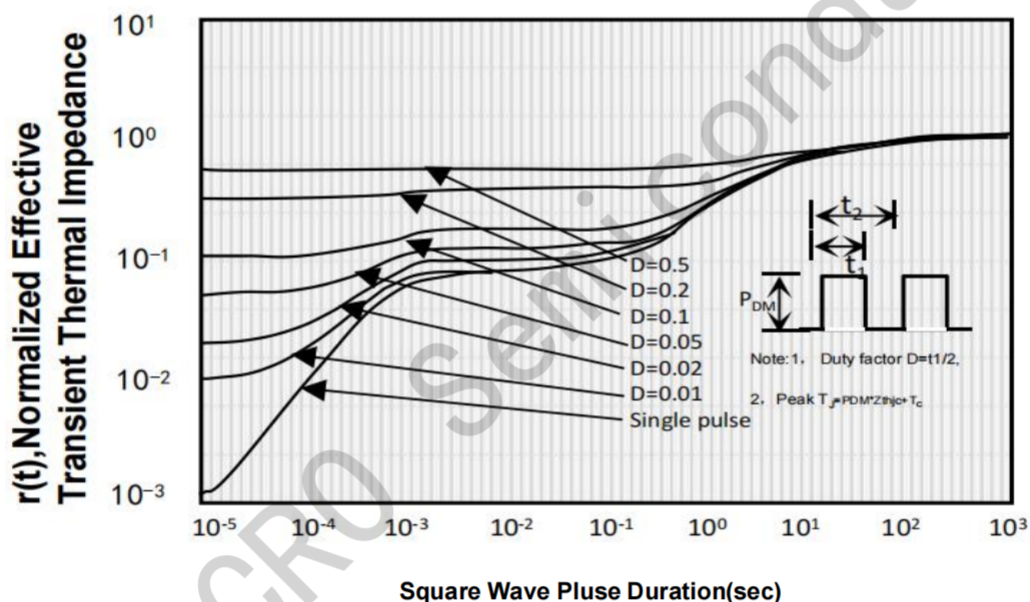
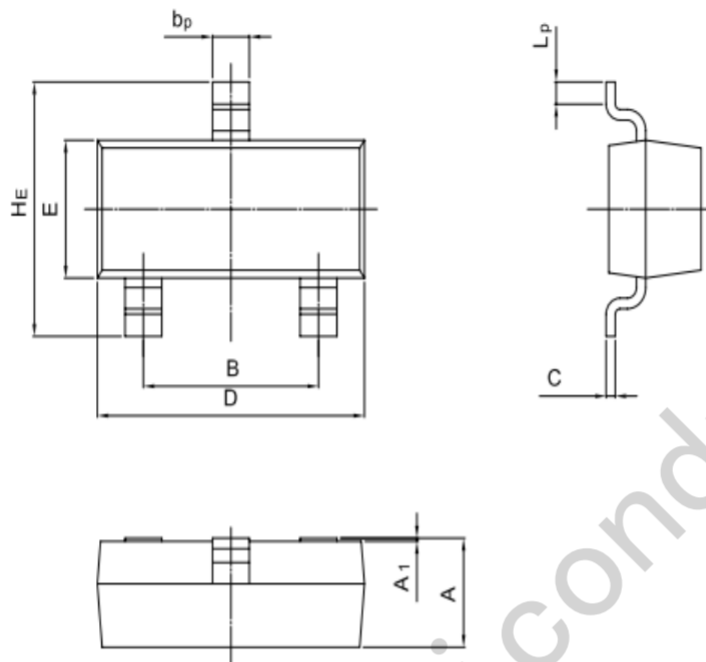


Figure 9. Transient Thermal Response Curve

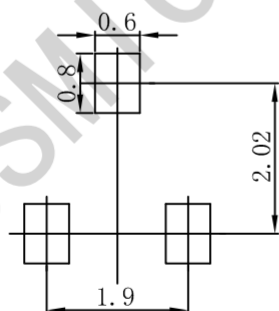
Package Information

SOT-23



UNIT	A	B	b_p	C	D	E	H_E	A_1	L_p
mm	1.40 0.95	2.04 1.78	0.50 0.35	0.19 0.08	3.10 2.70	1.65 1.20	3.00 2.20	0.100 0.013	0.50 0.20

SOT-23 Suggested Pad Layout



Note:

1. Controlling dimension: in millimeters.
2. General tolerance: ± 0.05 mm.
3. The pad layout is for reference purposes only.