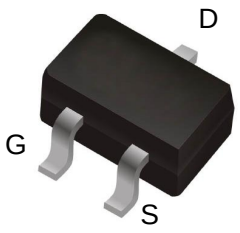
2SJ347

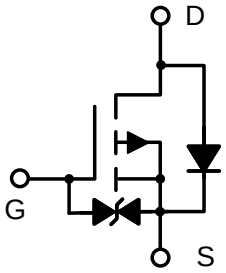
-20V P-Channel MOSFET

Features

- V_{DS}=-20V
- I_D=-0.5A
- $R_{DS(ON)}$ @V_{GS}=-4.5V, TYP=530mΩ
- $R_{DS(ON)}$ @V_{GS}=-2.5V, TYP=750mΩ
- $R_{DS(ON)}$ @V_{GS}=-1.8V, TYP=1100mΩ
- Trench Technology Power MOSFET
- Low $R_{DS(ON)}$
- Low Gate Charge
- ESD Protected



SOT-523



Application

- Load Switching
- Low Current Inverters

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

Symbol	Parameter		Value	Unit
V_{DS}	Drain-Source Voltage		-20	V
V_{GS}	Gate-Source Voltage		±12	V
I_D	Continuous Drain Current[1,5]	T_A = 25°C	-0.5	A
P_D	Maximum Power Dissipation[4,5]	T_A = 25°C	0.2	W
$R_{\theta JA}$	Junction-to-Ambient Thermal Resistance [5]		883	°C/W
T_J	Junction Temperature Range		150	°C
T_{stg}	Storage Temperature Range		-55 to + 150	°C

Electrical Characteristics @T_J=25°C unless otherwise noted

Symbol	Parameter	Test Condition	Min.	Typ.	Max.	Unit
Off Characteristics						
BV_{DS}	Drain-Source Breakdown Voltage	V_{GS} = 0V, I_D =-250uA	-20	-24	–	V
I_{DSS}	Zero Gate Voltage Drain Current	V_{DS} = -20V, V_{GS} = 0V	–	–	-0.3	uA
I_{GSS}	Gate Body Leakage	V_{GS} = ±10V, V_{DS} = 0V	–	±2	±10	uA
On Characteristics(3)						
$V_{GS(th)}$	Gate Threshold Voltage	V_{DS} = V_{GS}, I_D = -250uA	-0.35	-0.62	-1.2	V
$R_{DS(on)}$	Drain-Source On-State Resistance	V_{GS} = -4.5V, I_D = -0.5A	–	530	790	mΩ
		V_{GS} = -2.5V, I_D = -0.3A	–	750	1000	
		V_{GS} = -1.8V, I_D = -0.2A	–	1100	1700	
Dynamic Characteristics						
C_{iss}	Input Capacitance	V_{DS} = -16V,	–	113	170	pF
C_{oss}	Output Capacitance	V_{GS} = 0V,	–	15	25	
C_{rss}	Reverse Transfer Capacitance	f = 1.0MHZ	–	9	15	
Switching Characteristics						
$t_{d(on)}$	Turn-On Delay Time	V_{DS} = -10V,	–	9	–	ns
t_r	Turn-On Rise Time	I_D = -200mA,	–	5.8	–	
$t_{d(off)}$	Turn-Off Delay Time	V_{GS} = -4.5V,	–	32.7	–	
t_f	Turn-Off Fall Time	R_G = 10Ω	–	20.3	–	
Source Drain Diode Characteristics						
V_{SD}	Diode Forward Voltage (3)	I_S = -0.5A,V_{GS} = 0V	–	–	-1.2	V

Note(1) :The maximum current rating is limited by package.

(2) :Repetitive rating:pulse width limited by $T_{J(MAX)}$ = 150°C.

(3) :Pulse Test : Pulse Width ≤ 300μs, duty cycle ≤ 2%.

(4) :The power dissipation PD is limited by $T_{J(MAX)}$ = 150°C.

(5) :Device mounted on 1in^2 FR-4 board with 2oz. Copper, in a still air environment with T_A =25°C.

Figure 1 :Typical Output Characteristics

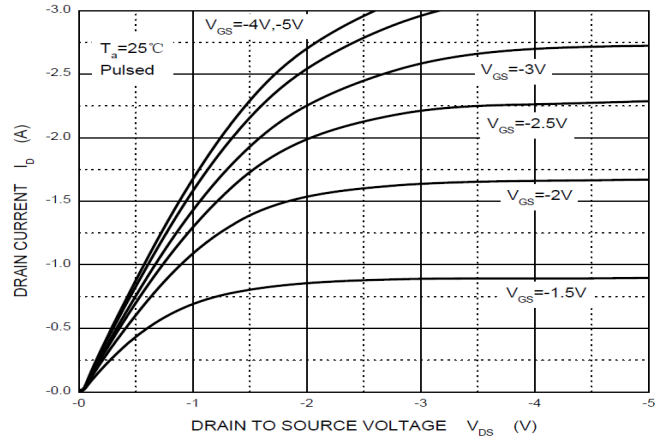


Figure 2 :Transfer Characteristics

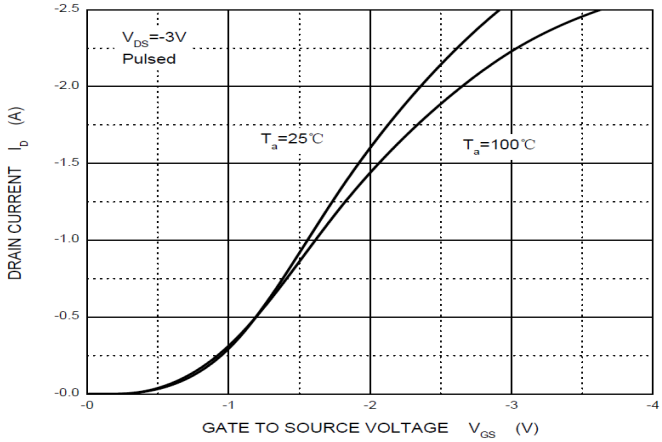


Figure 3 : $R_{DS(ON)}$ vs. I_D

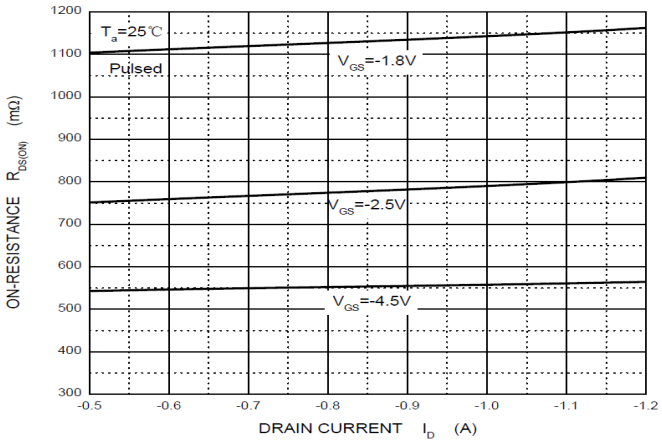


Figure 4 :$R_{DS(ON)}$ vs. V_{GS}

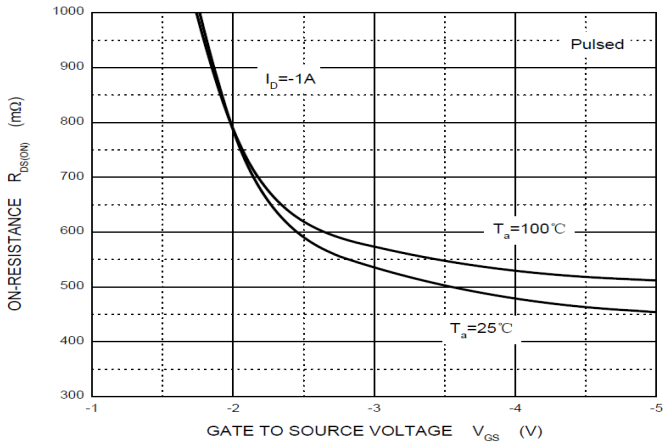


Figure 5 : I_S vs. V_{SD}

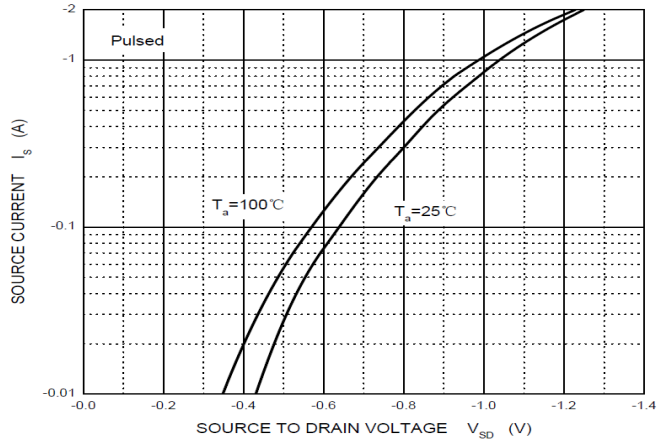
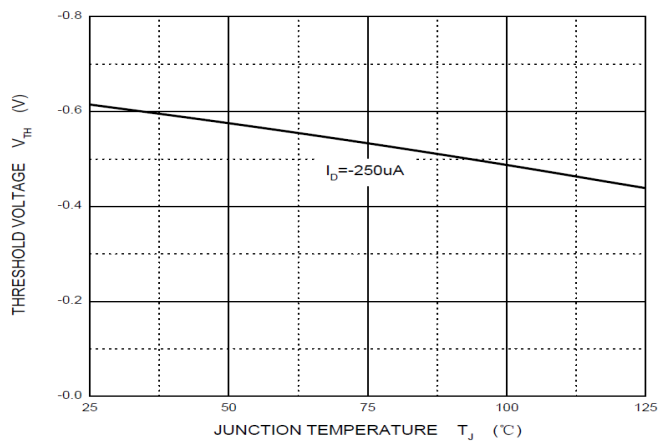
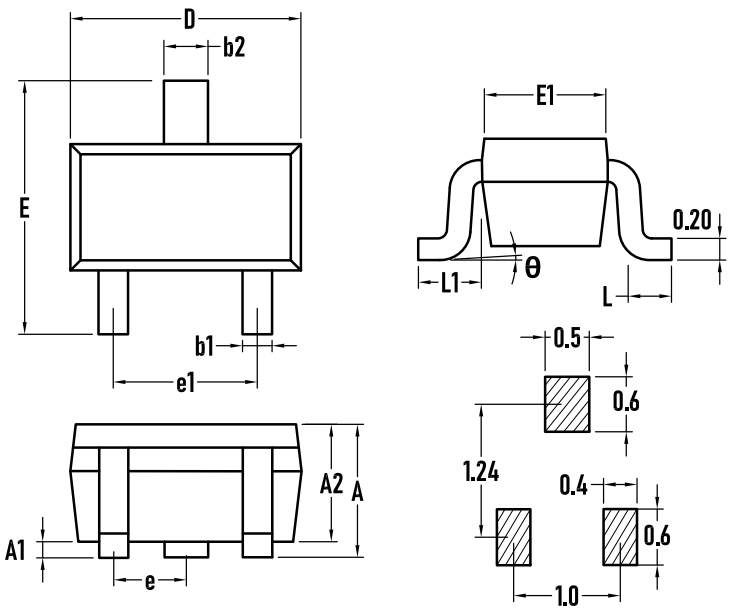


Figure 6 : Threshold Voltage



Outline Drawing – SOT-523



SYMBOL	MILLIMETER		
	MIN	TYP	MAX
A	0.70	0.80	0.90
A1	0.00	0.05	0.10
A2	0.70	0.75	0.80
b1	0.15	0.22	0.29
b2	0.25	0.32	0.39
D	1.50	1.60	1.70
E	1.45	1.60	1.75
E1	0.70	0.80	0.90
e	0.50(TPY.)		
e1	0.90	1.00	1.10
L	0.26	0.36	0.46
L1	0.40(REF)		
θ	0°	4°	8°