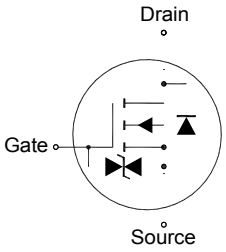
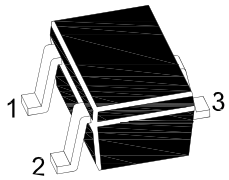
N-Channel Field Effect Transistor





1.Gate 2.Source 3.Draln
SOT-523 Plastlc Package

Applications

• Interfacing, switching

Features

• Low on-resistance
• Fast switching speed
• Low voltage drive makes this device ideal for portable equipment
• Drive circuits can be simple
• Parallel use is easy

Absolute Maximum Ratings (T_a = 25 °C)

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DSS}	30	V
Gate-Source Voltage	V_{GSS}	± 20	V
Drain Current - Continuous Drain Current - Pulsed	I_D I_{DP}	± 100 ± 400 [1)]	mA
Total Power Dissipation	P_{tot}	150 [2)]	mW
Channel temperature	T_{ch}	150	°C
Storage Temperature Range	T_{stg}	- 55 to + 150	°C

[1)] P_W ≤ 10 μs, Duty cycle ≤ 1 %
[2)] With each pin mounted on the recommended lands

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Characteristics at T_a = 25 °C

Parameter	Symbol	Min.	Typ.	Max.	Unit
Drain-Source Breakdown Voltage at I_D = 10 μA	$V_{(BR)DSS}$	30	-	-	V
Zero Gate Voltage Drain Current at V_{DS} = 30 V	I_{DSS}	-	-	1	μA
Gate-source Leakage at V_{GS} = ± 20 V	I_{GSS}	-	-	± 1	μA
Gate-Source Threshold Voltage at V_{DS} = 3 V, I_D = 100 μA	$V_{GS(th)}$	0.8	-	1.5	V
Static Drain-Source On-Resistance at V_{GS} = 4 V, I_D = 10 mA at V_{GS} = 2.5 V, I_D = 1 mA	$R_{DS(on)}$	- -	- -	8 13	Ω
Forward transfer admittance at V_{DS} = 3 V, I_D = 10 mA	$\|y_{fs}\|$	20	-	-	ms
Input Capacitance at V_{DS} = 5 V, f = 1 MHz	C_{iss}	-	13	-	pF
Output Capacitance at V_{DS} = 5 V, f = 1 MHz	C_{oss}	-	9	-	pF
Reverse Transfer Capacitance at V_{DS} = 5 V, f = 1 MHz	C_{rss}	-	4	-	pF
Turn-On delayTime at V_{DD} = 5 V, I_D = 10 mA, V_{GS} = 5 V, R_L = 500 Ω, R_G = 10 Ω	$t_{d(on)}$	-	15	-	ns
Turn-Off Delay Time at V_{DD} = 5 V, I_D = 10 mA, V_{GS} = 5 V, R_L = 500 Ω, R_G = 10 Ω	$t_{d(off)}$	-	80	-	ns
Rise Time at V_{DD} = 5 V, I_D = 10 mA, V_{GS} = 5 V, R_L = 500 Ω, R_G = 10 Ω	t_r	-	35	-	ns
Turn-off delay time at V_{DD} = 5 V, I_D = 10 mA, V_{GS} = 5 V, R_L = 500 Ω, R_G = 10 Ω	t_f	-	80	-	ns

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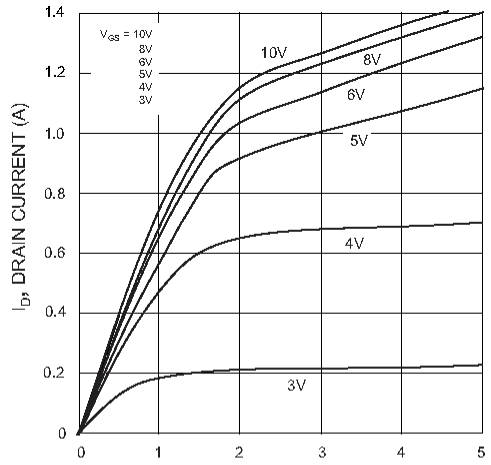


Fig. 1 Typical Output Characteristics

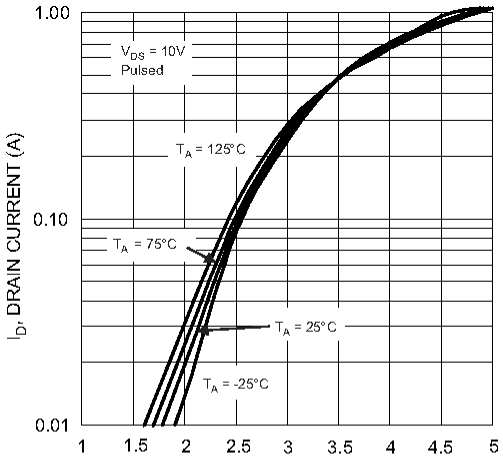


Fig. 2 Typical Transfer Characteristics

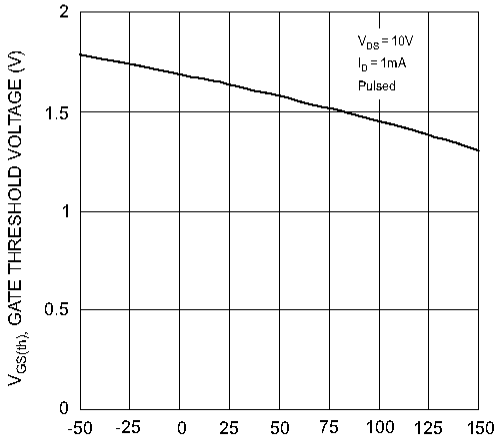


Fig. 3 Gate Threshold Voltage vs. Channel Temperature

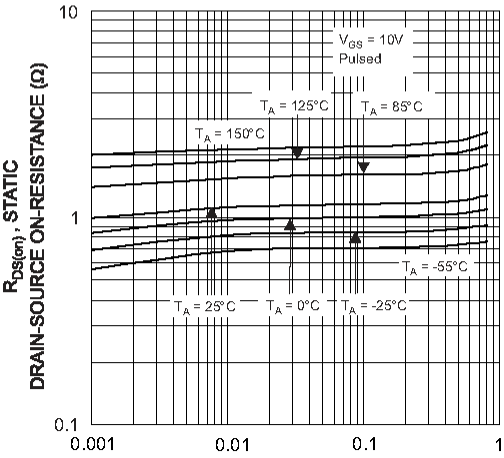


Fig. 4 Static Drain-Source On-Resistance Vs. Drain Current

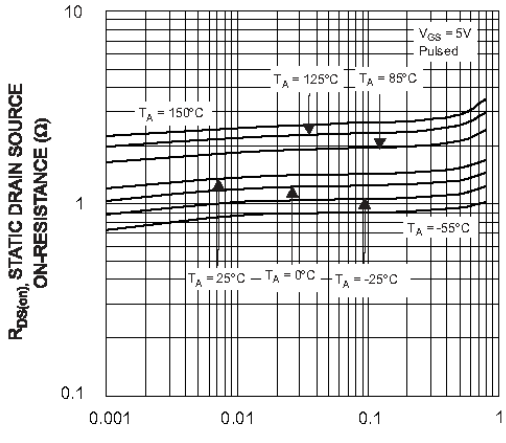


Fig. 5 Static Drain-Source On-Resistance vs. Drain Current

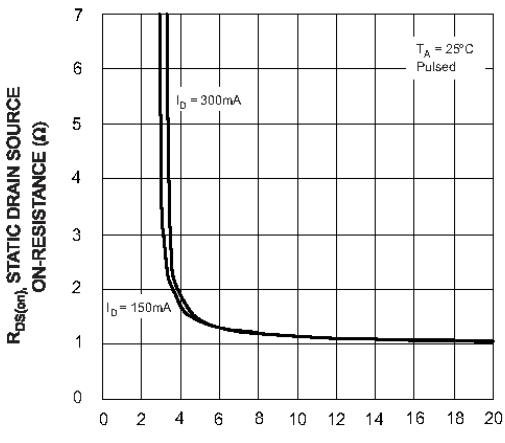
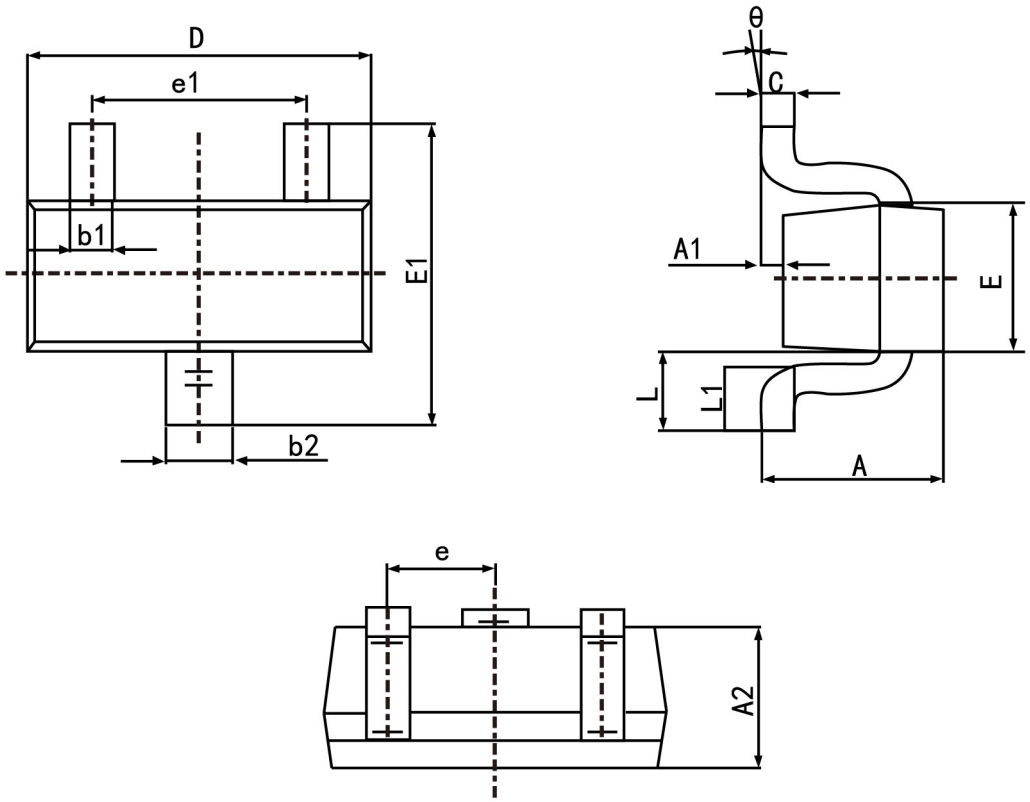


Fig. 6 Static Drain-Source On-Resistance vs. Gate-Source Voltage

PACKAGE OUTLINE

Plastic surface mounted package; 3 leads **SOT-523**



Symbol	Dimension in Millimeters	
	Min	Max
A	0.700	0.900
A1	0.000	0.100
A2	0.700	0.800
b1	0.150	0.250
b2	0.250	0.350
c	0.100	0.200
D	1.500	1.700
E	0.700	0.900
E1	1.450	1.750
e	0.500	TYP.
e1	0.900	1.100
L	0.400 REF.	
L1	0.260	0.460
θ	0°	8°