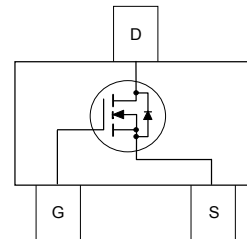
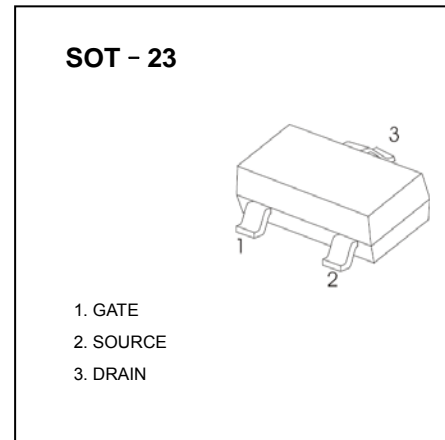


Applications

- Load switch
- Battery protection
- Power management

Features

- $V_{DS} (V) = 20V$
- $R_{DS(ON)} < 45m \Omega (V_{GS} = 4.5V)$
- $R_{DS(ON)} < 60m \Omega (V_{GS} = 2.5V)$



Absolute Maximum Ratings $T_A=25^\circ C$ unless otherwise noted

Symbol	Parameter	Ratings	Units
V_{DSS}	Drain-Source Voltage	20	V
V_{GSS}	Gate-Source Voltage	± 12	V
I_D	Drain Current – Continuous – Pulsed	0.9	A
		2	
P_D	Maximum Power Dissipation	0.35	W
T_J, T_{STG}	Operating and Storage Junction Temperature Range	-55 to +150	$^\circ C$
Thermal Characteristics			
$R_{\theta JA}$	Thermal Resistance, Junction-to-Ambient	357	$^\circ C/W$

Electrical Characteristics

T_A = 25°C unless otherwise noted

Symbol	Parameter	Test Conditions	Min	Typ	Max	Units
Off Characteristics						
BV _{DSS}	Drain–Source Breakdown Voltage	V _{GS} = 0 V, I _D = 250 μA	20			V
$\frac{\Delta BV_{DSS}}{\Delta T_J}$	Breakdown Voltage Temperature Coefficient	I _D = 250 μA, Referenced to 25°C		15		mV/°C
I _{DSS}	Zero Gate Voltage Drain Current	V _{DS} = 16 V, V _{GS} = 0 V			1	μA
I _{GSSF}	Gate–Body Leakage, Forward	V _{GS} = 12 V, V _{DS} = 0 V			100	nA
I _{GSSR}	Gate–Body Leakage, Reverse	V _{GS} = –12 V, V _{DS} = 0 V			–100	nA
On Characteristics (Note 2)						
V _{GS(th)}	Gate Threshold Voltage	V _{DS} = V _{GS} , I _D = 250 μA	0.6	1	1.5	V
$\frac{\Delta V_{GS(th)}}{\Delta T_J}$	Gate Threshold Voltage Temperature Coefficient	I _D = 250 μA, Referenced to 25°C		–3		mV/°C
R _{DS(on)}	Static Drain–Source On–Resistance	V _{GS} = 4.5 V, I _D = 0.9 A V _{GS} = 2.5 V, I _D = 0.7 A			45 60	mΩ
I _{D(on)}	On–State Drain Current	V _{GS} = 4.5 V, V _{DS} = 5 V	1			A
g _{FS}	Forward Transconductance	V _{DS} = 5 V, I _D = 0.9 A		3		S
Dynamic Characteristics						
C _{iss}	Input Capacitance	V _{DS} = 10 V, V _{GS} = 0 V, f = 1.0 MHz		109		pF
C _{oss}	Output Capacitance			30		pF
C _{rss}	Reverse Transfer Capacitance			14		pF
Switching Characteristics (Note 2)						
t _{d(on)}	Turn–On Delay Time	V _{DD} = 10 V, I _D = 1 A, V _{GS} = 4.5 V, R _{GEN} = 6 Ω		4.5	9	ns
t _r	Turn–On Rise Time			7	14	ns
t _{d(off)}	Turn–Off Delay Time			8	16	ns
t _f	Turn–Off Fall Time			1.4	2.8	ns
Q _g	Total Gate Charge	V _{DS} = 10 V, I _D = 0.9 A, V _{GS} = 4.5 V		1.1	1.5	nC
Q _{gs}	Gate–Source Charge			0.26		nC
Q _{gd}	Gate–Drain Charge			0.26		nC
Drain–Source Diode Characteristics and Maximum Ratings						
I _S	Maximum Continuous Drain–Source Diode Forward Current				0.29	A
V _{SD}	Drain–Source Diode Forward Voltage	V _{GS} = 0 V, I _S = 0.29 A		0.75	1.2	V
t _{rr}	Diode Reverse Recovery Time	I _F = 0.9 A,		7.4		nS
Q _{rr}	Diode Reverse Recovery Charge	d _I /d _t = 100 A/μs		2.2		nC

Notes:

1. Pulse Test: Pulse Width ≤ 300 μs, Duty Cycle ≤ 2.0%

Typical Characteristics

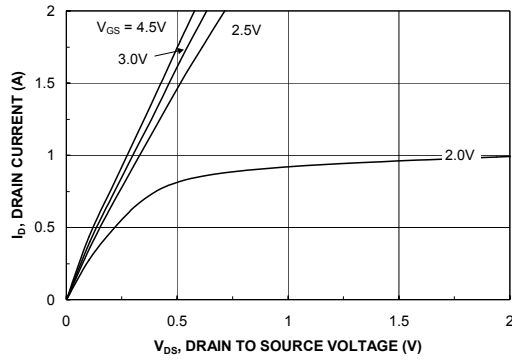


Figure 1. On-Region Characteristics.

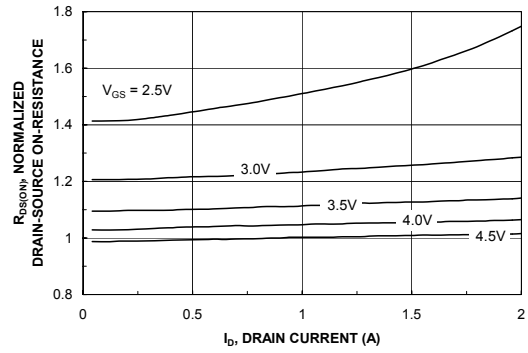


Figure 2. On-Resistance Variation with Drain Current and Gate Voltage.

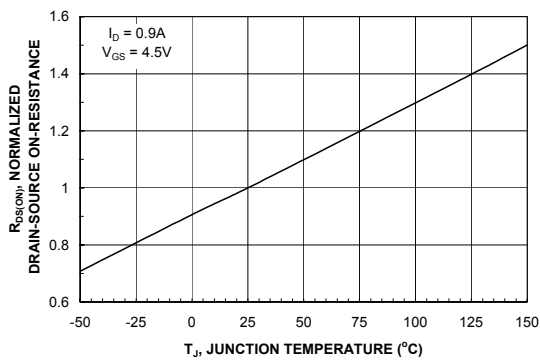


Figure 3. On-Resistance Variation with Temperature.

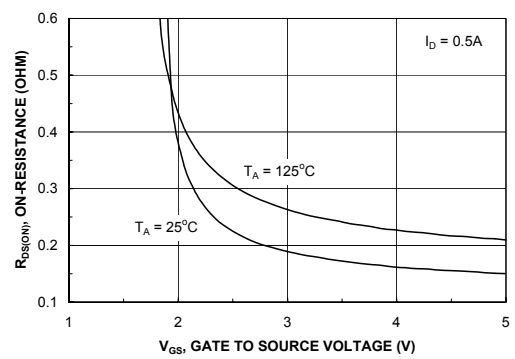


Figure 4. On-Resistance Variation with Gate-to-Source Voltage.

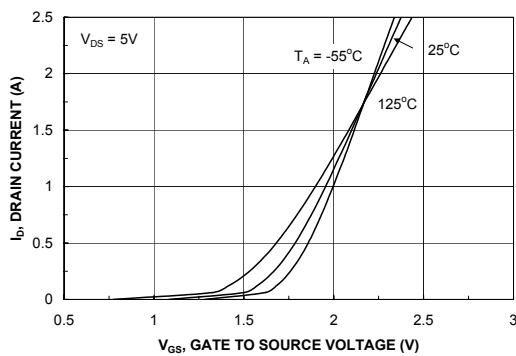


Figure 5. Transfer Characteristics.

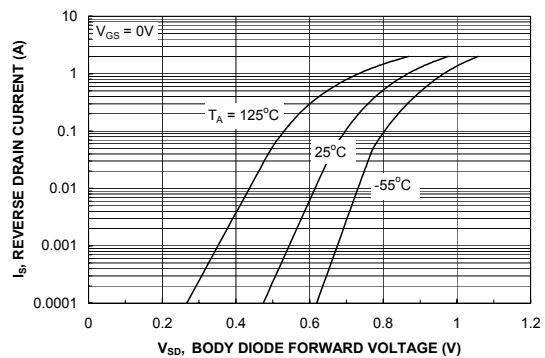


Figure 6. Body Diode Forward Voltage Variation with Source Current and Temperature.

Typical Characteristics

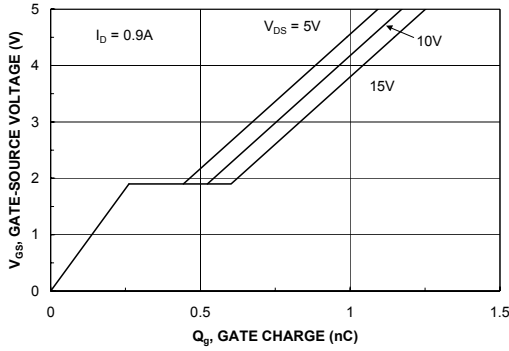


Figure 7. Gate Charge Characteristics.

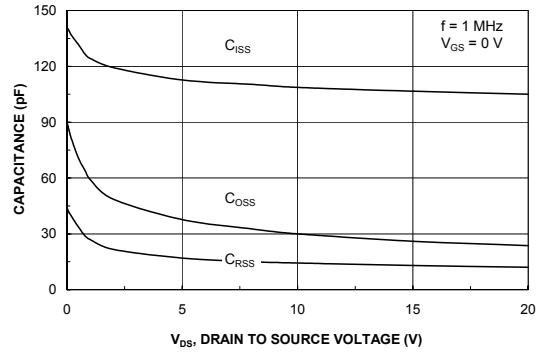


Figure 8. Capacitance Characteristics.

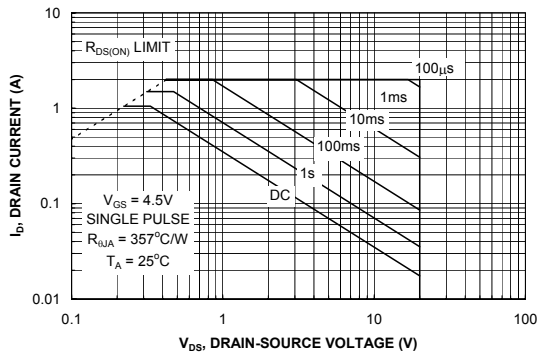


Figure 9. Maximum Safe Operating Area.

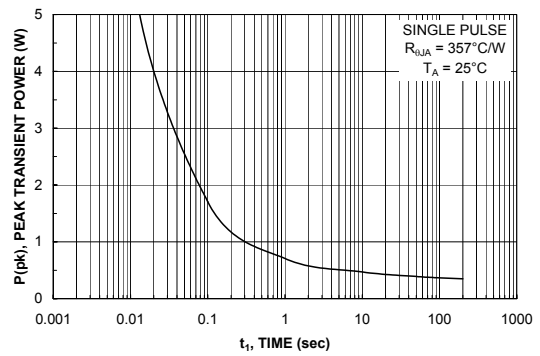


Figure 10. Single Pulse Maximum Power Dissipation.

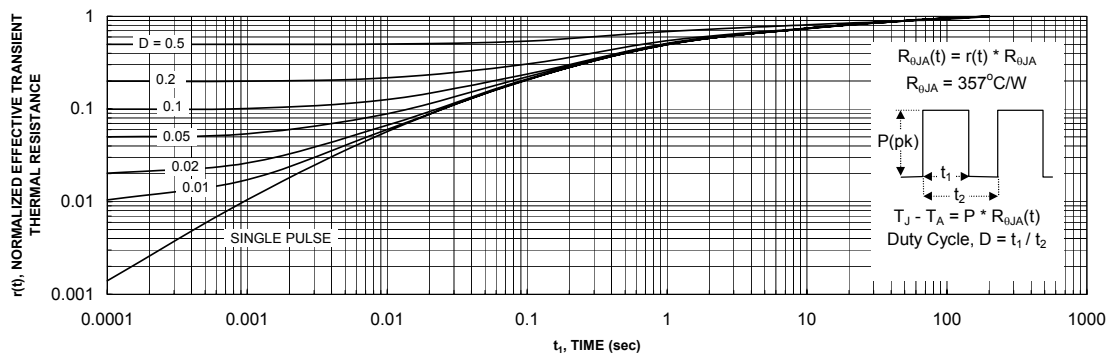
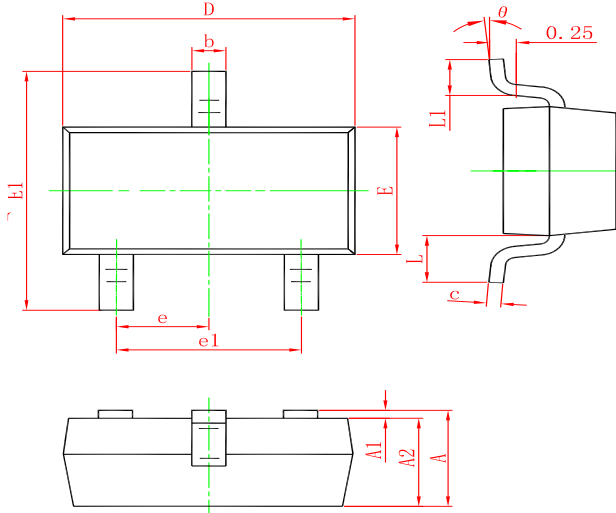


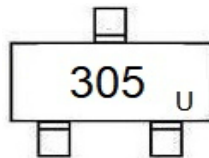
Figure 11. Transient Thermal Response Curve.

SOT-23 PACKAGE OUTLINE DIMENSIONS



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	0.900	1.150	0.035	0.045
A1	0.000	0.100	0.000	0.004
A2	0.900	1.050	0.035	0.041
b	0.300	0.500	0.012	0.020
c	0.080	0.150	0.003	0.006
D	2.800	3.000	0.110	0.118
E	1.200	1.400	0.047	0.055
E1	2.250	2.550	0.089	0.100
e	0.950 TYP.		0.037 TYP.	
e1	1.800	2.000	0.071	0.079
L	0.550 REF.		0.022 REF.	
L1	0.300	0.500	0.012	0.020
θ	0°	8°	0°	8°

Marking



Ordering information

Order code	Package	Baseqty	Deliverymode
FDV305N	SOT-23	3000	Tape and reel