P-Channel -20V (D-S) Power MOSFET

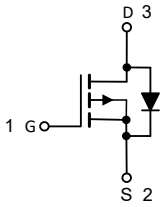
Features

- 100% Avalanche Tested
- Halogen Free, Pb-Free
- RoHS Compliant

SOT-23

Applications

- Relay driver
- Switching circuits
- High-side load switch
- High-speed line driver



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

Parameter		Symbol	Value	Unit
Drain Source Voltage		V_{DS}	-20	V
Gate Source Voltage		V_{GS}	±8	V
Drain Current, Continuous V_{GS}=-10V	T_C=25°C	I_D	-4	A
	T_C=70°C		-2.4	
Drain Current, Pulsed *(Note 1)*		I_{DM}	-30	A
Power Dissipation	T_C=25°C	P_D	1.4	W
Operating Junction/ Storage Temperature Range		T_J/ T_{STG}	-55 to +150	°C

Note 1: Single pulse; $t_p \leq 1us$.

Thermal Characteristics

Parameter	Symbol	Max	Unit
Thermal Resistance Junction to Ambient *(Note 2)*	R_{thJA}	90	°C/W

Note 2: Device mounted on 1 square inch FR4 PCB board, with 2oz single-sided copper, in a 25°C still air environment.

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

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Drain Source Breakdown Voltage	$V_{(BR)DSS}$	V_{GS}=0V, I_D=-250μA	-20	--	--	V
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}=-20V, V_{GS}=0V	--	--	-1	uA
Gate Threshold Voltage	$V_{GS(TH)}$	V_{DS}=V_{GS}, I_{DS}=-250uA	-0.3	--	-0.9	V
Gate Leakage Current	I_{GSS}	V_{GS}=±20V, V_{DS}=0V	--	--	±100	nA
Drain-Source On-state Resistance *(Note 3)*	$R_{DS(on)}$	V_{GS}=-4.5V, I_D=-4A	--	31	38	mΩ
		V_{GS}=-2.5V, I_D=-4A	--	37	48	
Total Gate Charge	Q_g	$V_{GS(off)}$=0V, $V_{GS(on)}$=-4.5V, V_{DS}=-10V, I_D=-4A	--	9.8	--	nC
Gate-Source Charge	Q_{gs}		--	0.72	--	
Gate-Drain Charge	Q_{gd}		--	3.3	--	
Turn-on Delay Time	$t_{d(on)}$	V_{GS}=-4.5V, V_{DD}=-10V, R_G=3Ω	--	9.7	--	ns
Turn-on Rise Time	t_r		--	8.4	--	
Turn-off Delay Time	$t_{d(off)}$		--	27	--	
Turn-off Fall Time	t_f		--	12	--	
Input Capacitance	C_{iss}	V_{GS}=0V, V_{DS}=-10V, f=1MHz	--	837	--	pF
Output Capacitance	C_{oss}		--	117	--	
Reverse Transfer Capacitance	C_{rss}		--	86	--	

Reverse Diode Characteristics (T_A =25°C unless otherwise noted)

Parameter	Symbol	Test Conditions	Min.	Typ.	Max.	Unit
Forward Current, Continuous	I_{SD}	T_C=25°C	--	--	-4	A
Diode Forward Voltage *(Note 3)*	V_{SD}	I_F=-1A, V_{GS}=0V	--	--	1.2	V
Reverse Recovery Time	T_{rr}	V_R =-20V, I_F =-4A, di/dt = 100 A/μs	--	8.7	--	ns
Reverse Recovery Charge	Q_{rr}		--	2.3	--	nC

Note 3: Pulse test; pulse width ≤ 380μs, duty cycle ≤ 1%.

Typical Characteristics Curves (T_A = 25℃ unless otherwise noted)

Fig.1 - Output Characteristics

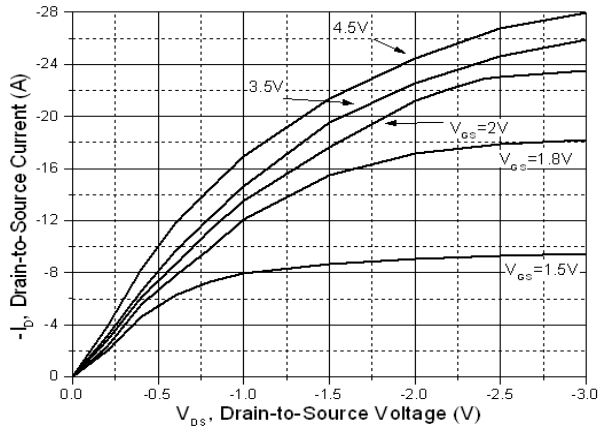


Fig.2 - Transfer Characteristics

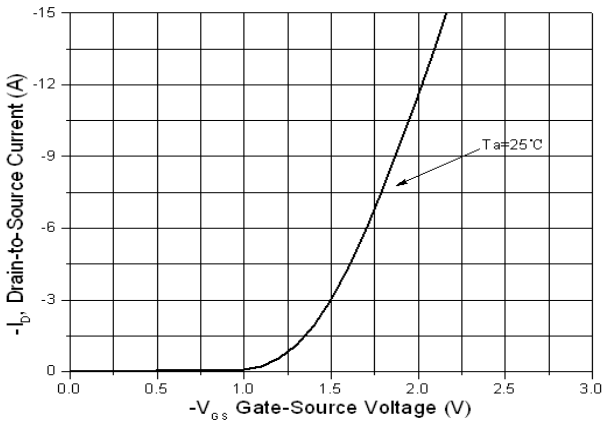


Fig.3 - Vth vs. Junction Temperature

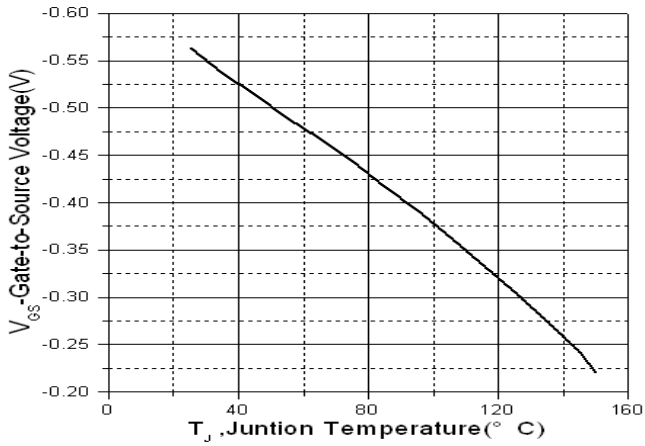


Fig.4 – $V_{BR(DSS)}$ vs. Junction Temperature

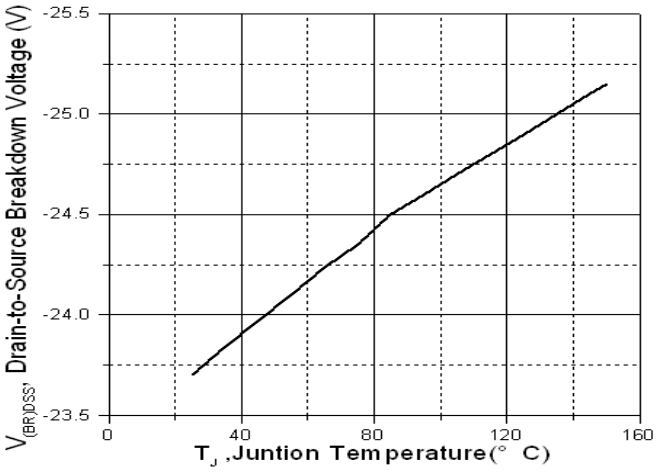


Fig.5 - Drain-Source On-Resistance

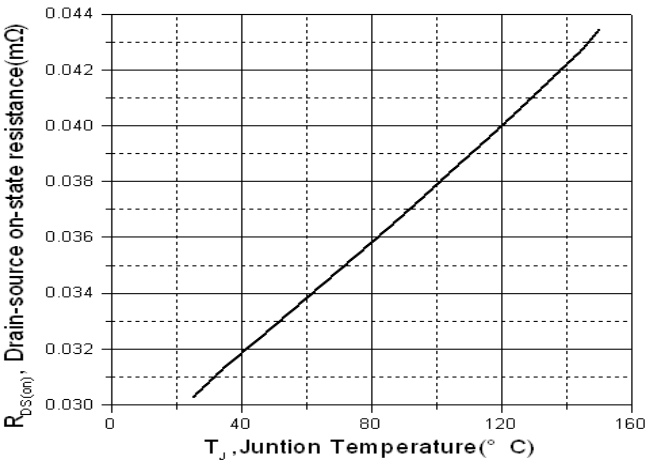
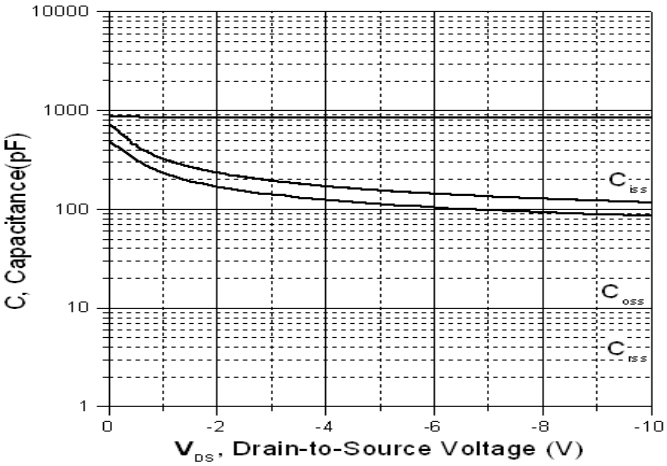
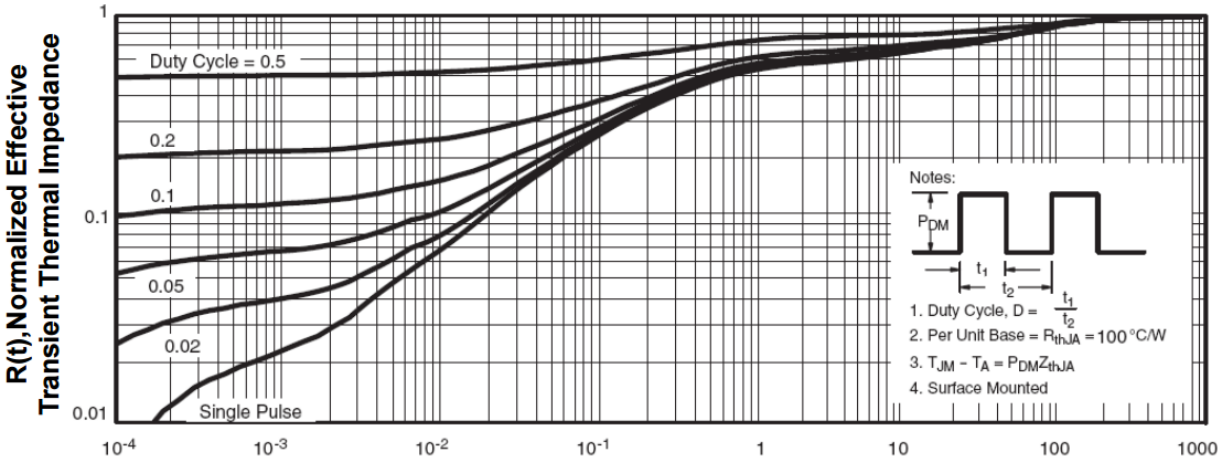


Fig.6 - Capacitance



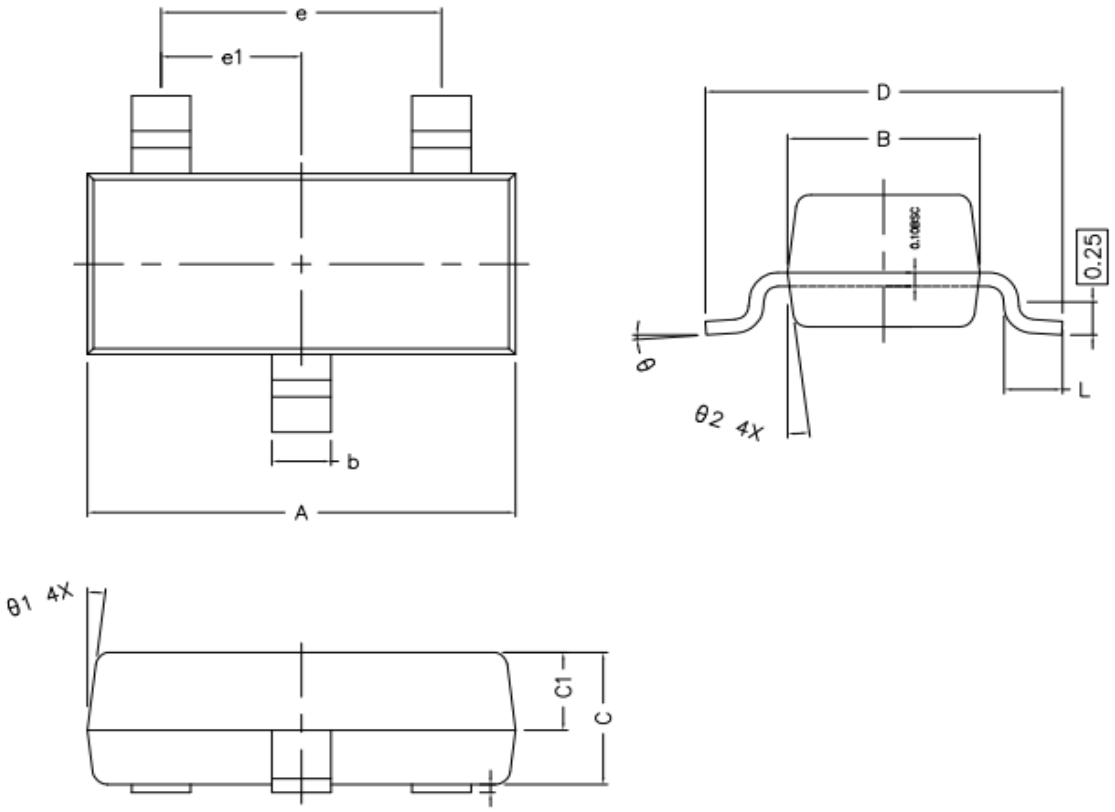
Typical Characteristics Curves (T_A = 25℃ unless otherwise noted)

Fig.7 - Normalized Thermal Impedance, Junction-Case



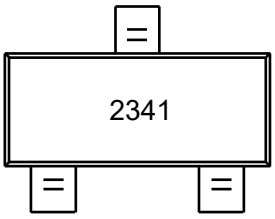
ackage Outline Dimensions (Unit: millimeters)

SOT-23



COMMON DIMENSIONS (UNITS OF MEASURE IS mm)			
	MIN	NORMAL	MAX
A	2.800	2.900	3.000
B	1.200	1.300	1.400
C	0.900	1.000	1.100
C1	0.500	0.550	0.600
D	2.300	2.400	2.500
L	0.300	0.400	0.500
h	0.010	0.050	0.100
b	0.350	0.400	0.450
e	1.90 TYPE		
e1	0.95 TYPE		
θ_1	7° TYPE		
θ_2	7° TYPE		
θ	0° ~ 7°		

Marking Outline



Part Name: GMP2341EU

1. P/N Mark: 2341

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