



New Product

Si2341DS
Vishay Siliconix

P-Channel 30-V (D-S) MOSFET

PRODUCT SUMMARY

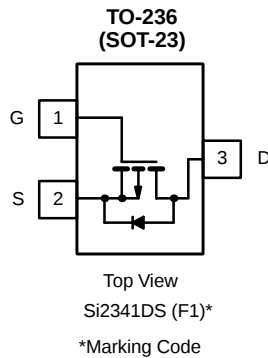
V_{DS} (V)	$r_{DS(on)}$ (Ω)	I_D (A) ^b
-30	0.072 @ $V_{GS} = -10$ V	-2.8
	0.120 @ $V_{GS} = -4.5$ V	-2.0

FEATURES

- TrenchFET® Power MOSFETS

APPLICATIONS

- Load Switch
- PA Switch



Ordering Information: Si2341DS-T1

ABSOLUTE MAXIMUM RATINGS ($T_A = 25^\circ\text{C}$ UNLESS OTHERWISE NOTED)

Parameter		Symbol	5 sec	Steady State	Unit
Drain-Source Voltage		V _{DS}	-30		V
Gate-Source Voltage		V _{GS}	±20		
Continuous Drain Current (T _J = 150°C) ^b	T _A = 25°C	I _D	-2.8	-2.5	A
	T _A = 70°C		-2.2	-2.0	
Pulsed Drain Current ^a		I _{DM}	-12		
Continuous Source Current (Diode Conduction) ^b		I _S	-0.75	-0.6	
Power Dissipation ^b	T _A = 25°C	P _D	0.9	0.71	W
	T _A = 70°C		0.57	0.45	
Operating Junction and Storage Temperature Range		T _J , T _{stg}	-55 to 150		°C

THERMAL RESISTANCE RATINGS

Parameter	Symbol	Typical	Maximum	Unit
Maximum Junction-to-Ambient ^b	R_{thJA}	115	140	$^\circ\text{C/W}$
Maximum Junction-to-Ambient ^c		140	175	
Maximum Junction-to-Foot (Drain)	R_{thJF}	60	75	

Notes

- Pulse width limited by maximum junction temperature.
- Surface Mounted on FR4 Board, $t \leq 5$ sec.
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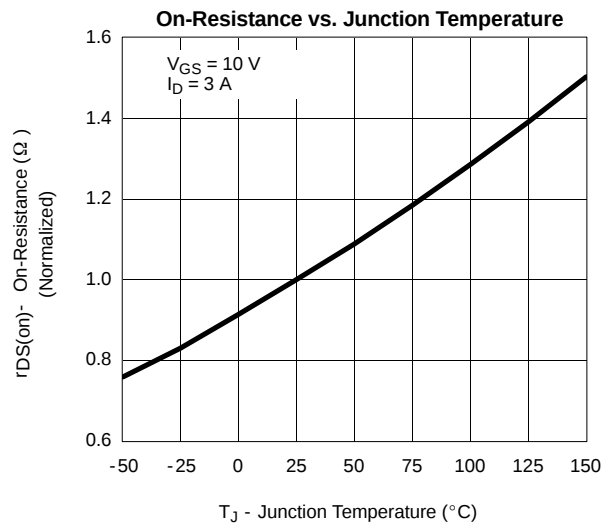
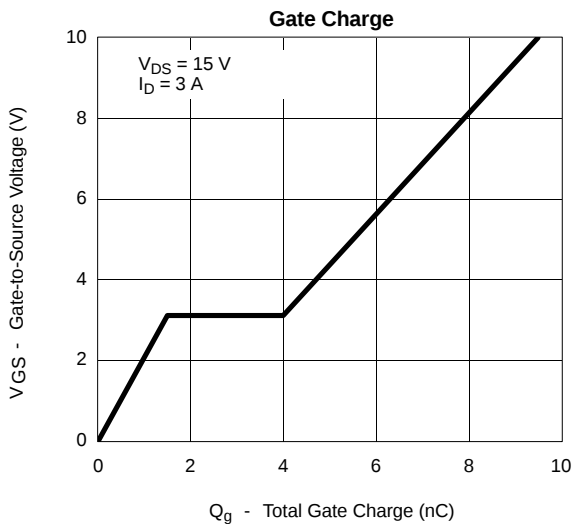
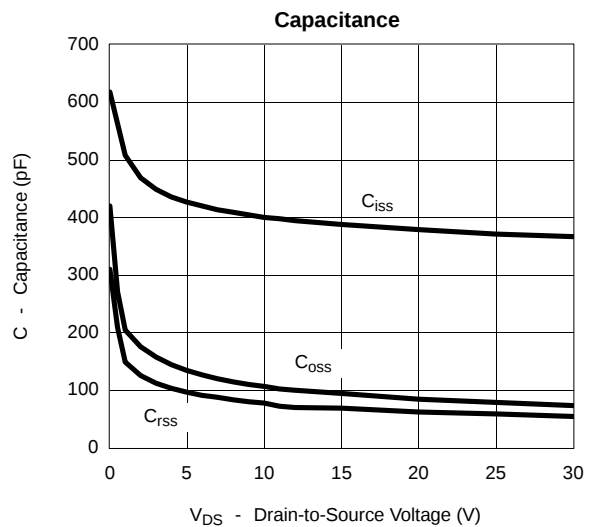
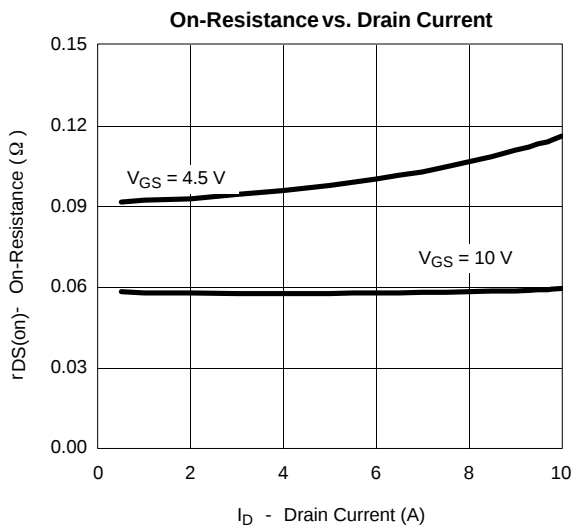
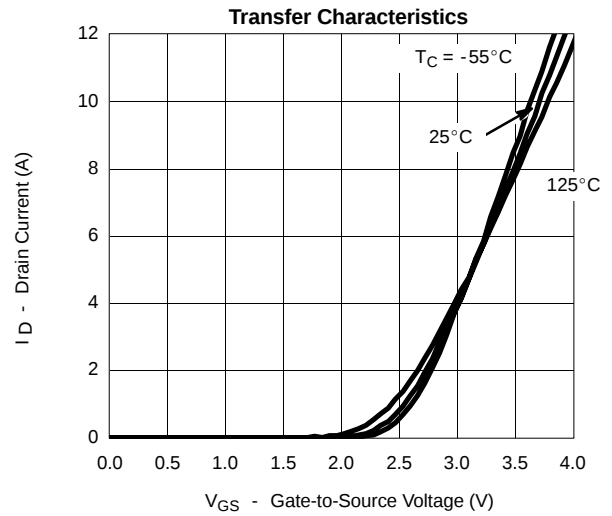
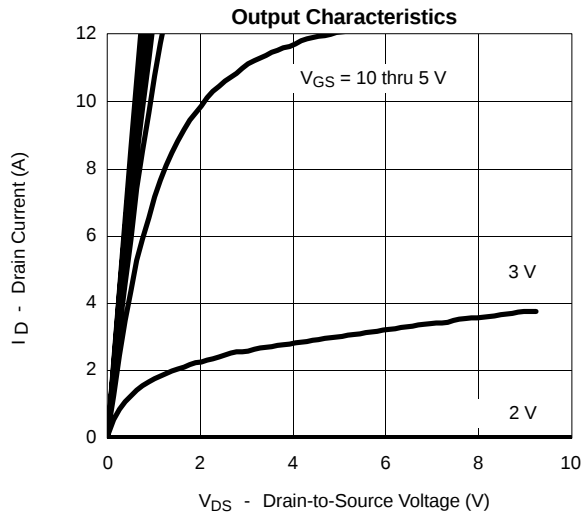
For SPICE model information via the Worldwide Web: <http://www.vishay.com/www/product/spice.htm>

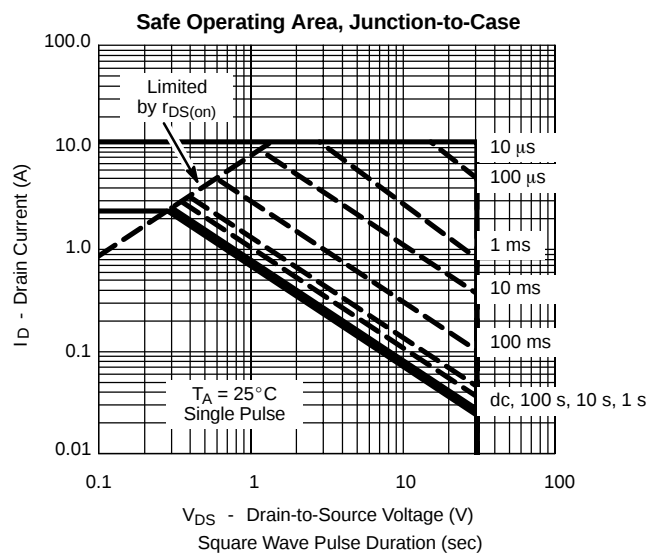
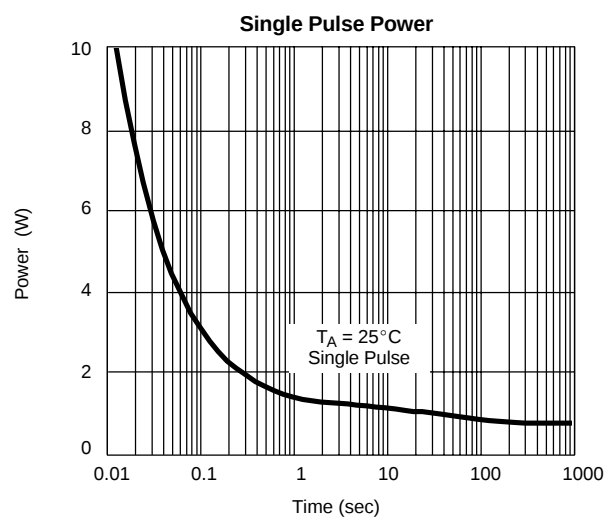
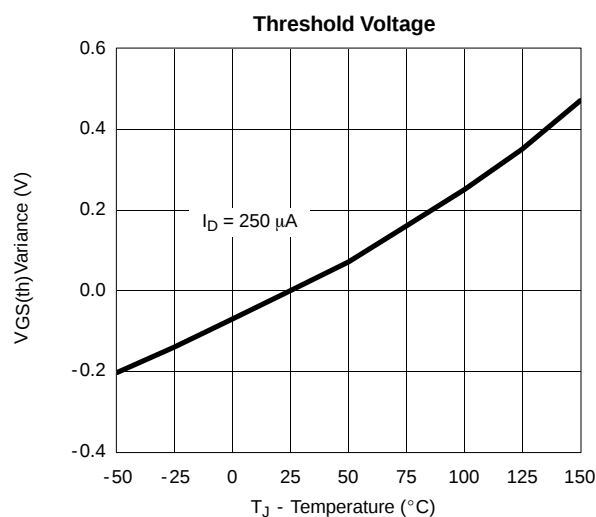
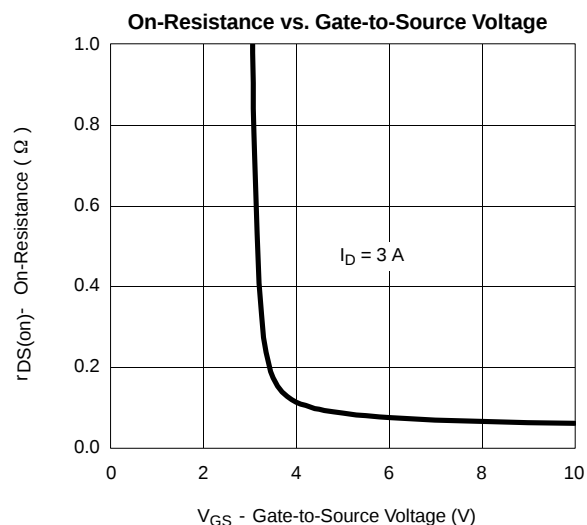
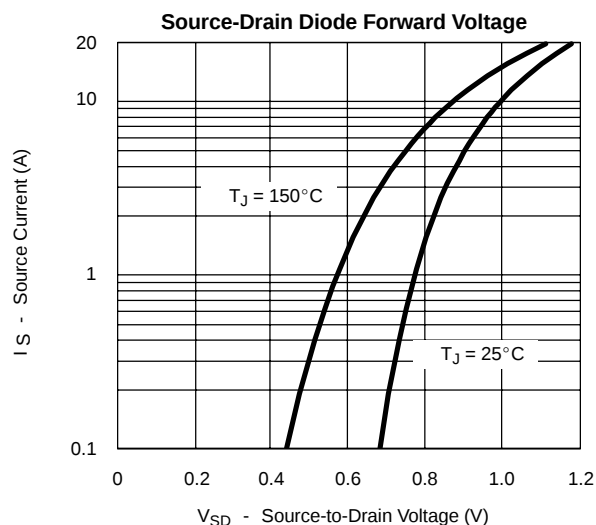
SPECIFICATIONS ($T_J = 25^\circ\text{C}$ UNLESS OTHERWISE NOTED)

Parameter	Symbol	Test Conditions	Limits			Unit
			Min	Typ	Max	
Static						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	$V_{GS} = 0\text{ V}, I_D = -10\text{ }\mu\text{A}$	-30			V
Gate-Threshold Voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = -250\text{ }\mu\text{A}$	-1.0		-3.0	
Gate-Body Leakage	I_{GSS}	$V_{DS} = 0\text{ V}, V_{GS} = \pm 20\text{ V}$			± 100	nA
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS} = -24\text{ V}, V_{GS} = 0\text{ V}$			-1	μA
		$V_{DS} = -24\text{ V}, V_{GS} = 0\text{ V}, T_J = 55^\circ\text{C}$			-10	
On-State Drain Current ^a	$I_{D(on)}$	$V_{DS} \leq -5\text{ V}, V_{GS} = -10\text{ V}$	-6			A
Drain-Source On-Resistance ^a	$r_{DS(on)}$	$V_{GS} = -10\text{ V}, I_D = -2.8\text{ A}$		0.057	0.072	Ω
		$V_{GS} = -4.5\text{ V}, I_D = -2.0\text{ A}$		0.090	0.120	
Forward Transconductance ^a	g_{fs}	$V_{DS} = -5\text{ V}, I_D = -2.8\text{ A}$		8.0		S
Diode Forward Voltage	V_{SD}	$I_S = -0.75\text{ A}, V_{GS} = 0\text{ V}$		-0.8	-1.2	V
Dynamic ^b						
Total Gate Charge	Q_g	$V_{DS} = -15\text{ V}, V_{GS} = -10\text{ V}$ $I_D \cong -2.8\text{ A}$		9.5	15	nC
Gate-Source Charge	Q_{gs}			1.5		
Gate-Drain Charge	Q_{gd}			2.5		
Input Capacitance	C_{iss}	$V_{DS} = -15\text{ V}, V_{GS} = 0, f = 1\text{ MHz}$		400		pF
Output Capacitance	C_{oss}			95		
Reverse Transfer Capacitance	C_{rss}			70		
Switching ^c						
Turn-On Time	$t_{d(on)}$	$V_{DD} = -15\text{ V}, R_L = 15\text{ }\Omega$ $I_D \cong -1.0\text{ A}, V_{GEN} = -4.5\text{ V}$ $R_G = 6\text{ }\Omega$		7	15	ns
	t_r			15	25	
Turn-Off Time	$t_{d(off)}$			20	30	
	t_f			20	30	

Notes

- a. Pulse test: $PW \leq 300\text{ }\mu\text{s}$ duty cycle $\leq 2\%$.
b. For DESIGN AID ONLY, not subject to production testing.
c. Switching time is essentially independent of operating temperature. • FaxBack 408-970-5600

**TYPICAL CHARACTERISTICS (25 °C UNLESS NOTED)**

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