

SOT-23 Plastic-Encapsulate MOSFETS

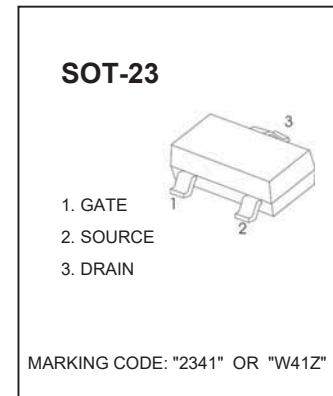
BC2341 P-Channel 20-V(D-S) MOSFET

Features

- Higher Efficiency Extending Battery Life
- Super high density cell design for extremely low RDS (ON)

Applications

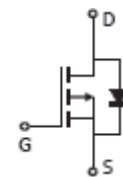
- DC/DC Converter
- Load Switch
- Battery Powered System
- LCD Display inverter
- Power Management in Portable, Battery Powered Products



ABSOLUTE MAXIMUM RATINGS $T_A = 25\text{ }^\circ\text{C}$, unless otherwise noted

Parameter	Symbol	5 s	Steady State	Unit	
Drain-Source Voltage	V_{DS}	-20		V	
Gate-Source Voltage	V_{GS}	± 8			
Continuous Drain Current ($T_J = 150\text{ }^\circ\text{C}$) ^a	I_D	$T_A = 25\text{ }^\circ\text{C}$	-4.3	-3.5	A
		$T_A = 80\text{ }^\circ\text{C}$	-3.2	-2.5	
Pulsed Drain Current	I_{DM}	-20			
Continuous Source Current (Diode Conduction) ^a	I_S	-1.7	-1		
Maximum Power Dissipation ^a	P_D	$T_A = 25\text{ }^\circ\text{C}$	1.25	0.75	W
		$T_A = 80\text{ }^\circ\text{C}$	0.7	0.42	
Operating Junction and Storage Temperature Range	T_J, T_{stg}	- 55 to 150		$^\circ\text{C}$	

a. Surface Mounted on FR4 Board using 1 in sq pad size, 2oz Cu.



Equivalent Circuit

THERMAL RESISTANCE RATINGS

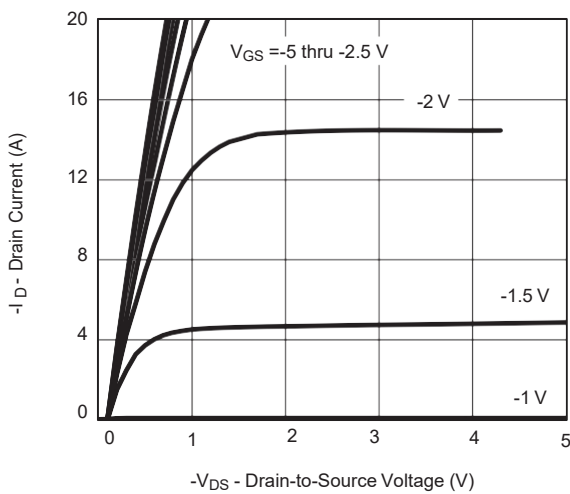
Parameter		Symbol	Typical	Maximum	Unit
Junction-to-Ambient Thermal Resistance ^b	$t \leq 5\text{ s}$	$R_{\theta JA}$	75	100	$^\circ\text{C/W}$
	Steady State		125	165	

b. Surface Mounted on FR4 Board using 1 in sq pad size,

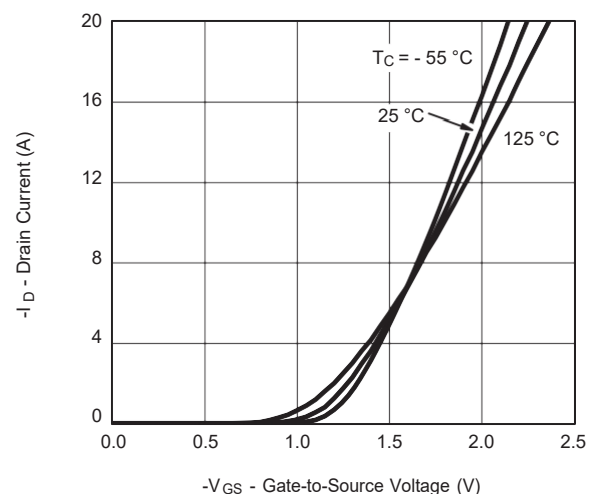
Electrical characteristics (T_a=25°C unless otherwise noted)

Parameter	Symbol	Test Condition	Min	Typ	Max	Units
Off Characteristics						
Drain-Source Breakdown Voltage	BV _{DSS}	V _{GS} = 0V, I _D = -250μA	-20			V
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} = -16V, V _{GS} = 0V			-1	μA
Gate-Source leakage current	I _{GSS}	V _{GS} = f8 V, V _{DS} = 0V			f100	nA
On Characteristics						
Gate Threshold Voltage	V _{GS(th)}	V _{GS} = V _{DS} , I _D = -250μA	-0.35	-0.63	-1.00	V
Static Drain-Source On-Resistance	R _{DS(on)}	V _{GS} = -4.5V, I _D = -3.3A		52	61	mΩ
		V _{GS} = -2.5V, I _D = -2.8 A		65	71	mΩ
Forward Transconductance	g _{FS}	V _{DS} = -5 V, I _D = -3.3A		3.0		S
Dynamic Characteristics						
Input Capacitance	C _{iss}	V _{DS} = -6 V, V _{GS} = 0V, f = 1.0 MHz			700	pF
Output Capacitance	C _{oss}				160	pF
Reverse Transfer Capacitance	C _{rss}				120	pF
Switching Characteristics						
Turn-On Delay Time	t _{d(on)}	V _{GS} = -4.5V, V _{DD} = -6 V, I _D = -1.0A, R _G = 6.0Ω,			25	ns
Turn-On Rise Time	t _r				55	ns
Turn-Off Delay Time	t _{d(off)}				90	ns
Turn-Off Fall Time	t _f				60	ns
Total Gate Charge	Q _{G(TOT)}	V _{DS} = -6 V, I _D = -3.3A, V _{GS} = -4.5V		8	13	nC
Threshold gate charge	Q _{G(TH)}			0.2		nC
Gate-Source Charge	Q _{GS}			1.2		nC
Gate-Drain Charge	Q _{GD}			2.2		nC
Drain-Source Diode Characteristics and Maximum Ratings						
Forward Diode Voltage	V _{SD}	V _{GS} = 0V, I _S = -1.6A		-0.8		V

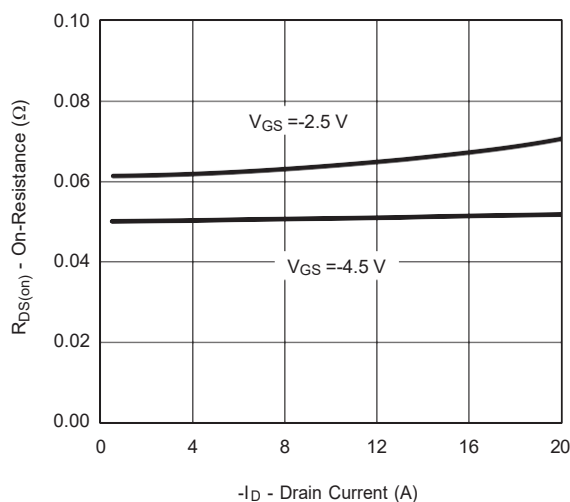
Typical Characteristics (T_J = 25°C unless otherwise noted)



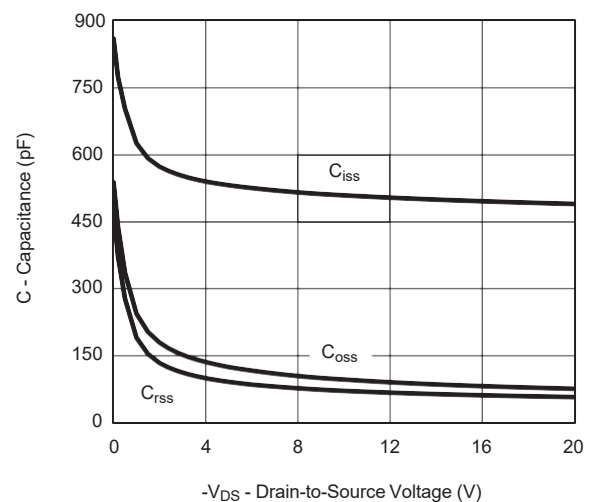
Output Characteristics



Transfer Characteristics

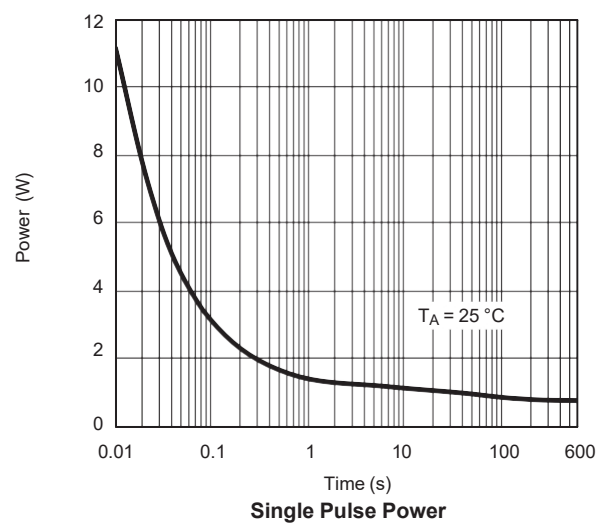
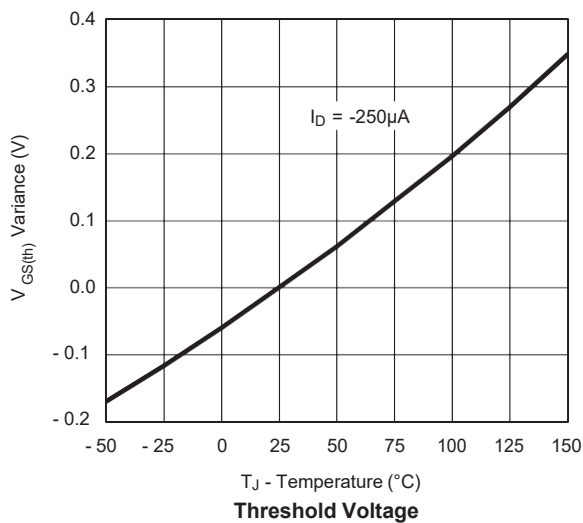
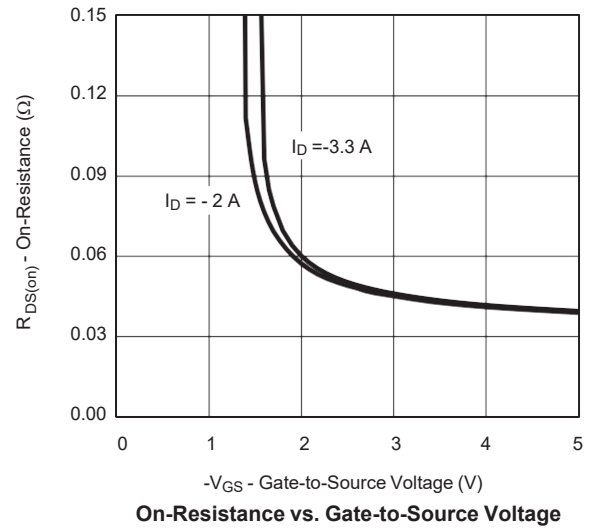
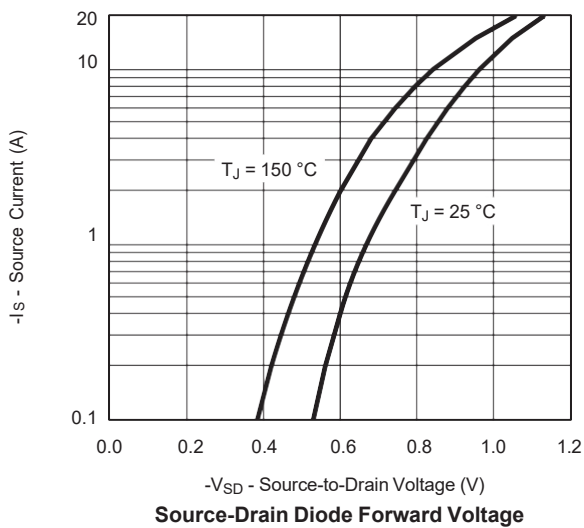
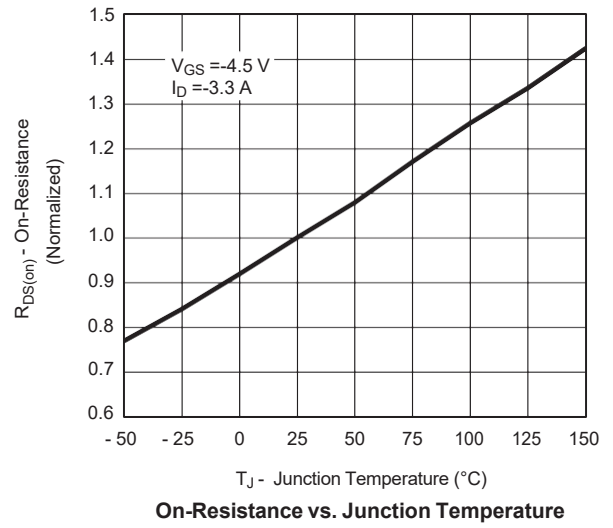
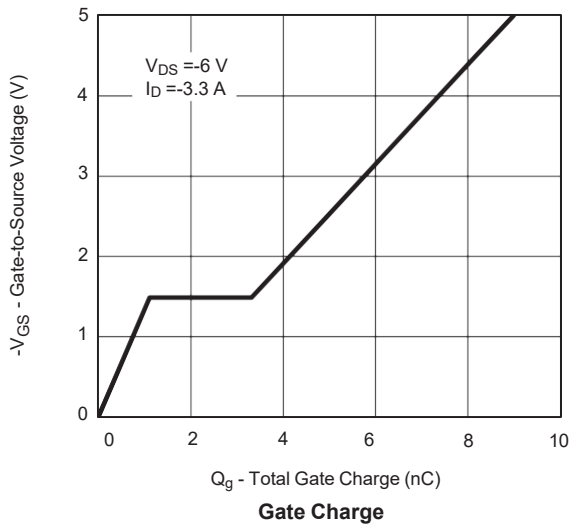


On-Resistance vs. Drain Current

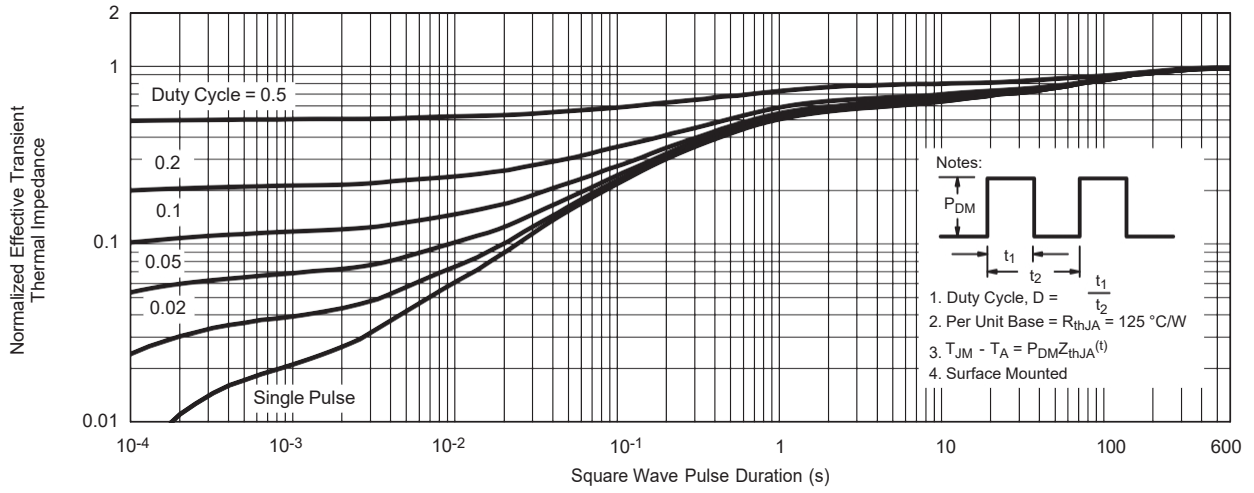


Capacitance

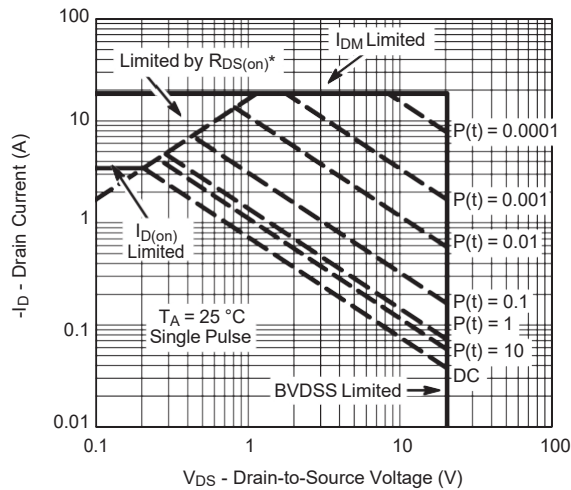
Typical Characteristics



Typical Characteristics



Normalized Thermal Transient Impedance, Junction-to-Ambient



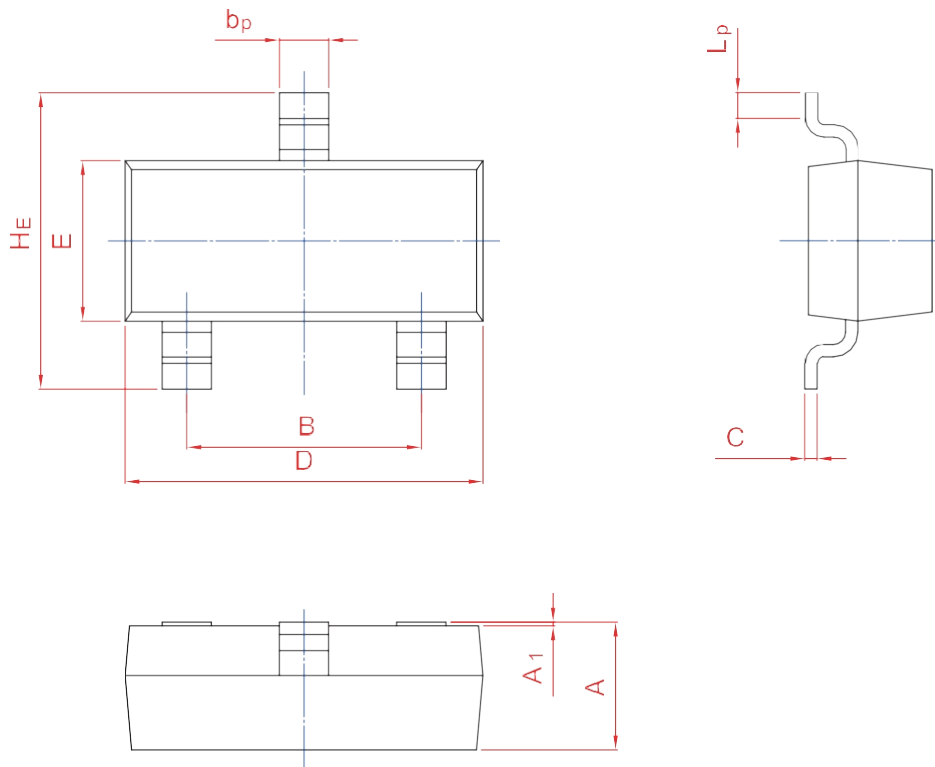
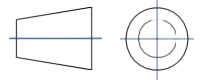
* $V_{GS} >$ minimum V_{GS} at which $R_{DS(on)}$ is specified

Safe Operating Area

PACKAGE OUTLINE

Plastic surface mounted package; 3 leads

SOT-23



UNIT	A	B	bp	C	D	E	HE	A1	Lp
mm	1.40	2.04	0.50	0.19	3.10	1.65	3.00	0.100	0.50
	0.95	1.78	0.35	0.08	2.70	1.20	2.20	0.013	0.20