



FEATURE

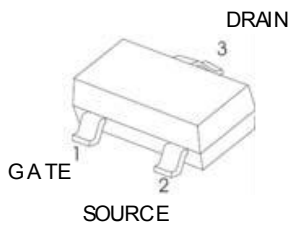
- Excellent $R_{DS(ON)}$, low gate charge, low gate voltages
- ESD Protected up to 2kV

APPLICATION

- Load switch and in PWM applications

MARKING

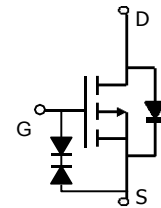
- **MARKING:**3415



SOT-23

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

$V_{(BR)DSS}$	$R_{DS(on)MAX}$	I_D
-20V	35mΩ@-4.5V	-4A
	45mΩ@-2.5V	
	85mΩ@-1.8V	



Maximum ratings ($T_a=25^\circ\text{C}$ unless otherwise noted)

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	-20	V
Gate-Source Voltage	V_{GS}	± 8	
Continuous Drain Current ($t \leq 10s$)	I_D	-4.0	A
Maximum Power Dissipation ($t \leq 10s$)	P_D	0.35	W
Thermal Resistance from Junction to Ambient	$R_{\theta JA}$	357	$^\circ\text{C}/\text{W}$
Operating Junction Temperature	T_J	150	$^\circ\text{C}$
Storage Temperature	T_{STG}	-55~+150	$^\circ\text{C}$



MOSFET ELECTRICAL CHARACTERISTICS

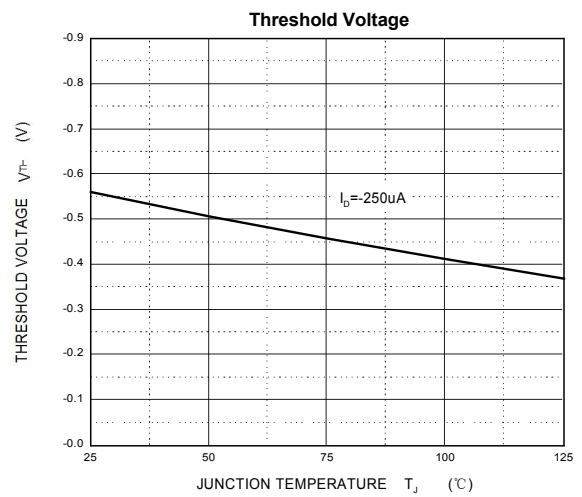
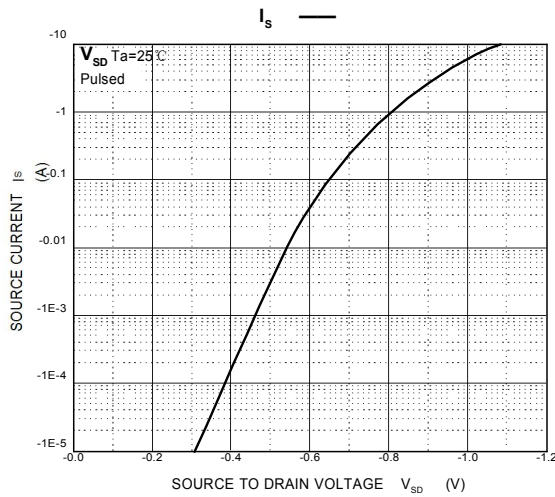
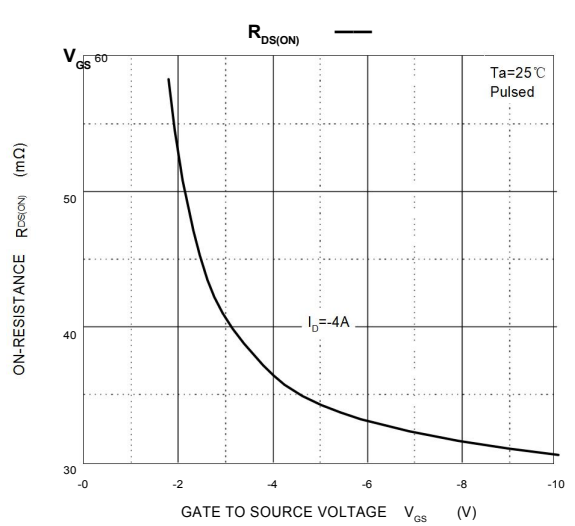
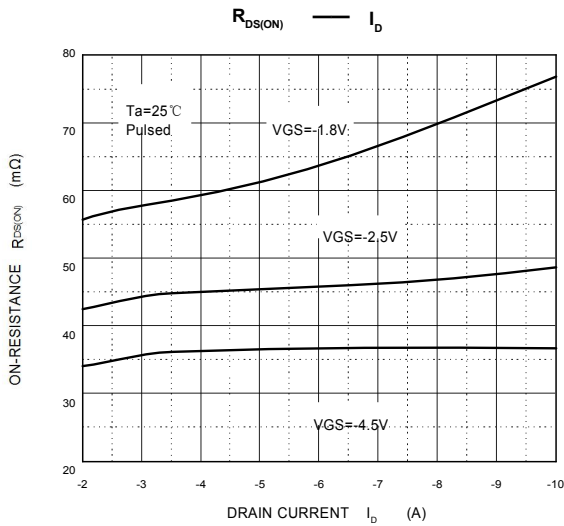
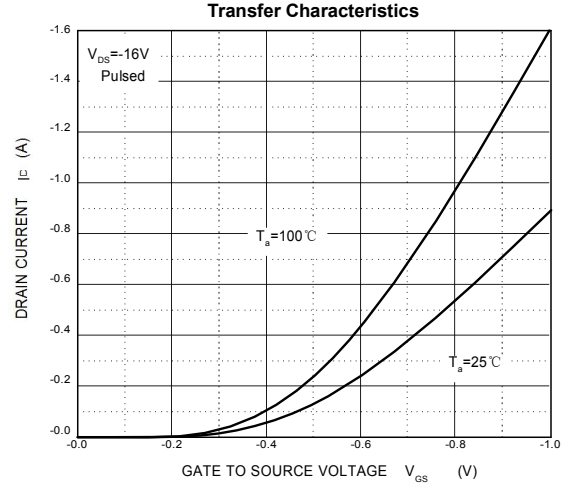
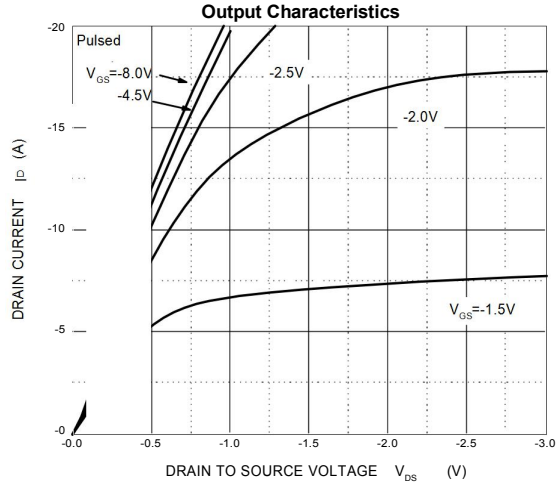
Ta=25 °C unless otherwise specified

Parameter	Symbol	Test Condition	Min	Typ	Max	Units
Static Parameters						
Drain-source breakdown voltage	$V_{(BR) DSS}$	$V_{GS} = 0V, I_D = -250\mu A$	-20			V
Gate threshold voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = -250\mu A$	-0.3	-0.65	-1	
Gate-body leakage current	I_{GSS}	$V_{DS} = 0V, V_{GS} = \pm 8V$			± 10	μA
		$V_{DS} = 0V, V_{GS} = \pm 4.5V$			± 1	
Zero gate voltage drain current	I_{DSS}	$V_{DS} = -16V, V_{GS} = 0V$			-1	
Drain-source on-state resistance(note1)	$R_{DS(on)}$	$V_{GS} = -4.5V, I_D = -4A$		0.031	0.035	Ω
		$V_{GS} = -2.5V, I_D = -4A$		0.040	0.045	
		$V_{GS} = -1.8V, I_D = -2A$		0.070	0.080	
Forward transconductance(note2)	g_{FS}	$V_{DS} = -5V, I_D = -4A$	8			S
Body diode voltage(note2)	V_{SD}	$I_S = -1A, V_{GS} = 0V$			-1	V
Dynamic Parameters (note3)						
Input capacitance	C_{iss}	$V_{DS} = -10V, V_{GS} = 0V, f = 1MHz$		850		pF
Output capacitance	C_{oss}			185		
Reverse transfer capacitance	C_{rss}			160		
Gate resistance	R_g	$V_{DS} = 0V, V_{GS} = 0V, f = 1MHz$		6.5		Ω
Switching Parameters						
Total gate charge	Q_g	$V_{DS} = -10V, V_{GS} = -4.5V, I_D = -4A$		17.2		nC
Gate-Source charge	Q_{gs}			1.3		
Gate-drain charge	Q_{gd}			4.5		
Turn-on delay time (note3)	$t_{d(on)}$	$V_{DS} = -10V, V_{GS} = -4.5V$ $R_{GEN} = 3\Omega, R_L = 2.5\Omega,$		9.5		ns
Turn-on rise time(note3)	t_r			17		
Turn-off delay time(note3)	$t_{d(off)}$			94		
Turn-off fall time(note3)	t_f			35		

Notes:

1. Repetitive rating, pulse width limited by junction temperature.
2. Pulse Test : Pulse width $\leq 300\mu s$, duty cycle $\leq 2\%$.
3. These parameters have no way to verify.

Typical Characteristics



PACKAGE OUTLINE

Plastic surface mounted package; 3 leads

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