

General Features

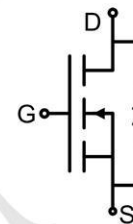
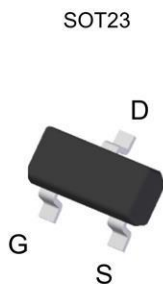
KEY PERFORMANCE PARAMETERS			
PARAMETER		VALUE	UNIT
V_{DS}		40	V
$R_{DS(on)}$ (max)	$V_{GS} = 10V$	45	m Ω
	$V_{GS} = 4.5V$	62.5	

Application

- Load/Power Switching
- Interfacing Switching
- Battery Management for Ultra Small Portable Electronics
- Logic Level Shift

Package and Pin Configuration

Circuit diagram



Absolute Maximum Ratings ($T_A=25^{\circ}C$ unless otherwise noted)

ABSOLUTE MAXIMUM RATINGS ($T_A = 25^{\circ}C$ unless otherwise noted)			
PARAMETER	SYMBOL	LIMIT	UNIT
Drain-Source Voltage	V_{DS}	40	V
Gate-Source Voltage	V_{GS}	± 20	V
Continuous Drain Current ^(Note 1)	I_D	3.9	A
Pulsed Drain Current ^(Note 2)	I_{DM}	16	A
Total Power Dissipation @ $T_A = 25^{\circ}C$	P_{DTOT}	1.25	W
Operating Junction and Storage Temperature Range	T_J, T_{STG}	- 55 to +150	$^{\circ}C$

Thermal Characteristic

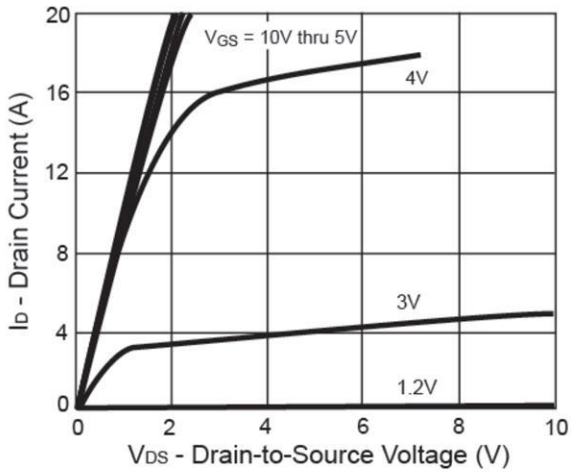
PARAMETER	SYMBOL	LIMIT	UNIT
Junction to Case Thermal Resistance	$R_{\theta JC}$	50	$^{\circ}C/W$
Junction to Ambient Thermal Resistance	$R_{\theta JA}$	100	$^{\circ}C/W$

Electrical Characteristics ($T_A=25^\circ\text{C}$ unless otherwise noted)

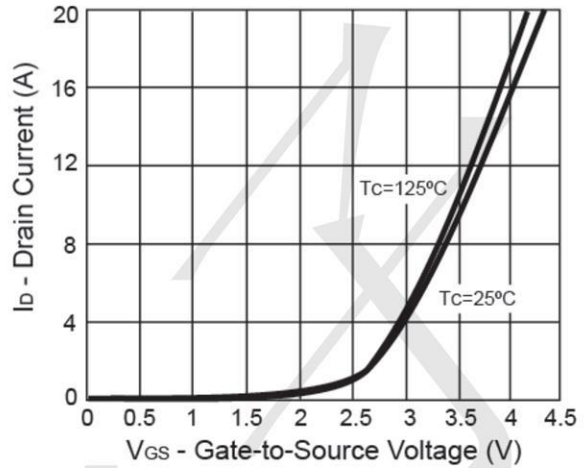
ELECTRICAL SPECIFICATIONS ($T_A = 25^\circ\text{C}$ unless otherwise noted)						
PARAMETER	CONDITIONS	SYMBOL	MIN	TYP	MAX	UNIT
Static (Note 3)						
Drain-Source Breakdown Voltage	$V_{GS} = 0\text{V}, I_D = 250\mu\text{A}$	BV_{DSS}	40	--	--	V
Gate Threshold Voltage	$V_{DS} = V_{GS}, I_D = 250\mu\text{A}$	$V_{GS(TH)}$	1	--	3	V
Gate Body Leakage	$V_{GS} = \pm 20\text{V}, V_{DS} = 0\text{V}$	I_{GSS}	--	--	± 100	nA
Zero Gate Voltage Drain Current	$V_{DS} = 32\text{V}, V_{GS} = 0\text{V}$	I_{DSS}	--	--	1.0	μA
Drain-Source On-State Resistance	$V_{GS} = 10\text{V}, I_D = 3.9\text{A}$	$R_{DS(on)}$	--	36	45	m Ω
	$V_{GS} = 4.5\text{V}, I_D = 3.5\text{A}$		--	50	62.5	
Dynamic (Note 4)						
Total Gate Charge	$V_{DS} = 20\text{V}, I_D = 3.9\text{A}, V_{GS} = 10\text{V}$	Q_g	--	10	--	nC
Gate-Source Charge		Q_{gs}	--	1.6	--	
Gate-Drain Charge		Q_{gd}	--	2.1	--	
Input Capacitance	$V_{DS} = 20\text{V}, V_{GS} = 0\text{V}, f = 1.0\text{MHz}$	C_{iss}	--	540	--	pF
Output Capacitance		C_{oss}	--	80	--	
Reverse Transfer Capacitance		C_{rss}	--	45	--	
Switching (Note 5)						
Turn-On Delay Time	$V_{DD} = 20\text{V}, R_L = 20\Omega, I_D = 1\text{A}, V_{GEN} = 10\text{V}, R_G = 6\Omega$	$t_{d(on)}$	--	5	--	ns
Turn-On Rise Time		t_r	--	12	--	
Turn-Off Delay Time		$t_{d(off)}$	--	20	--	
Turn-Off Fall Time		t_f	--	15	--	
Source-Drain Diode (Note 3)						
Forward On Voltage	$I_S = 1.25\text{A}, V_{GS} = 0\text{V}$	V_{SD}	--	0.8	1.2	V

Typical Electrical and Thermal Characteristics (Curves)

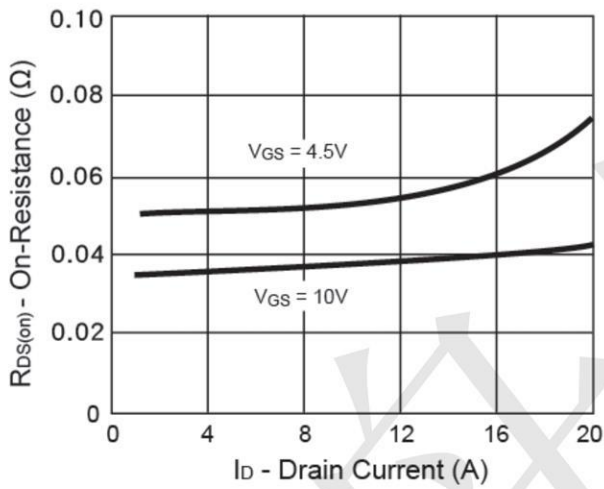
Output Characteristics



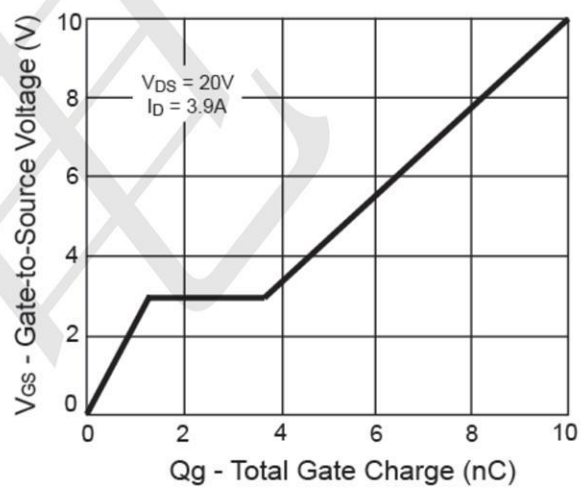
Transfer Characteristics



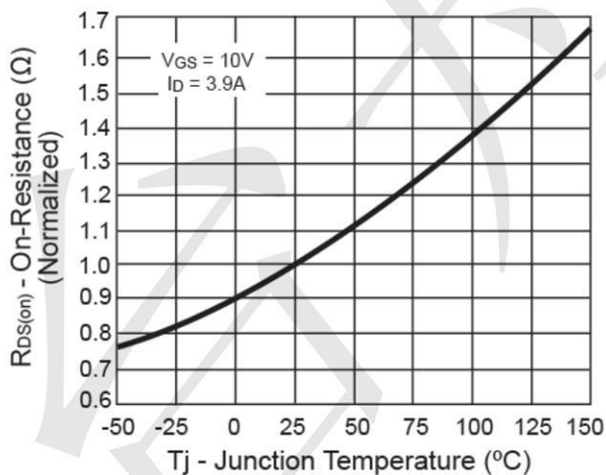
On-Resistance vs. Drain Current



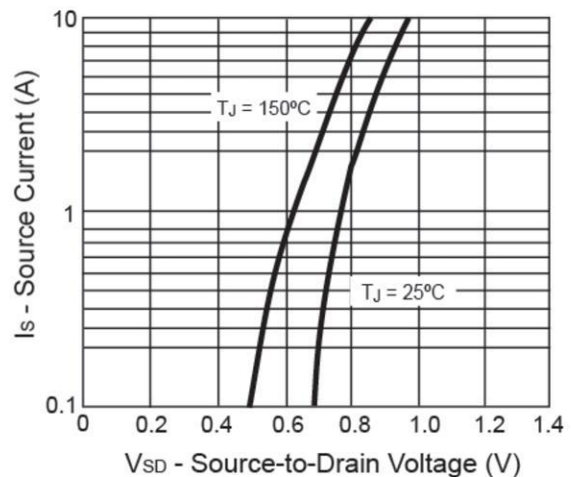
Gate Charge



On-Resistance vs. Junction Temperature



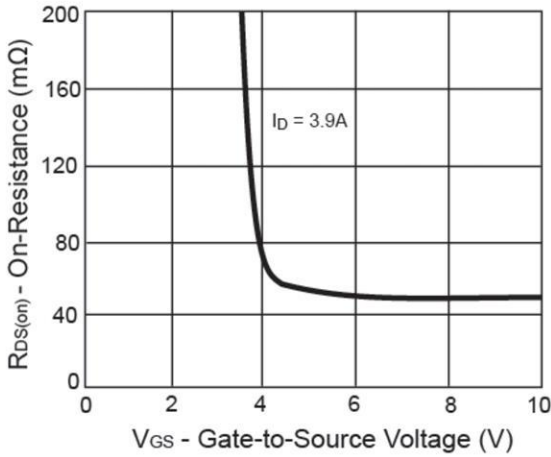
Source-Drain Diode Forward Voltage



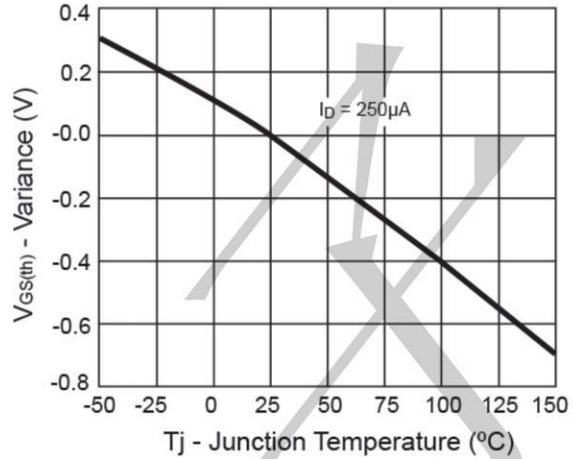


Typical Electrical and Thermal Characteristics (Curves)

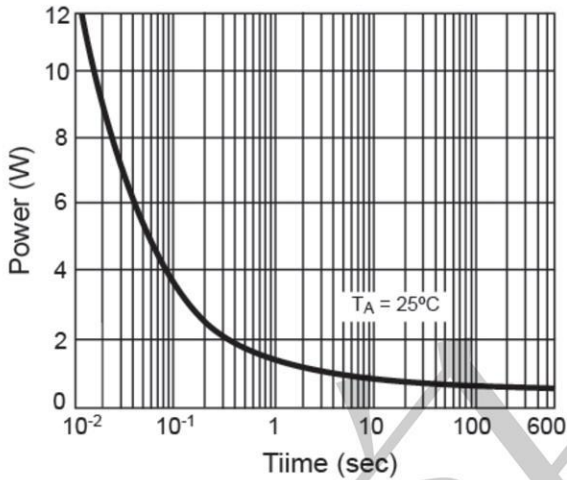
On-Resistance vs. Gate-Source Voltage



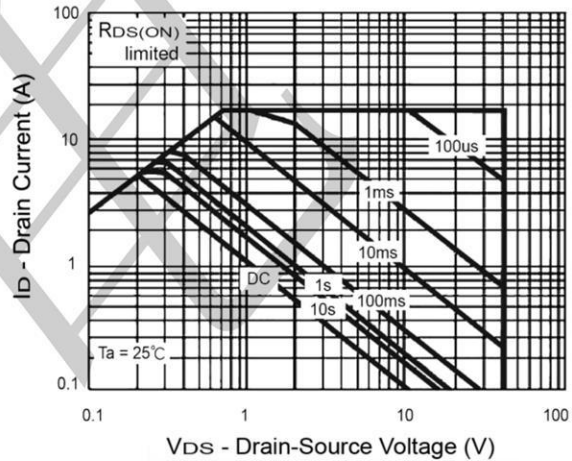
Threshold Voltage



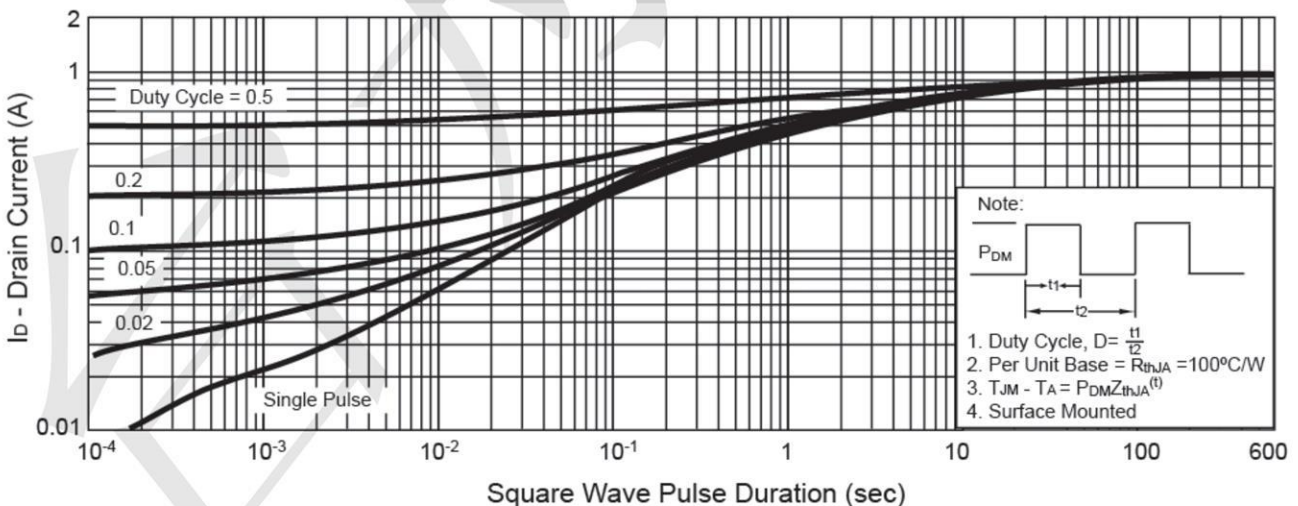
Single Pulse Power



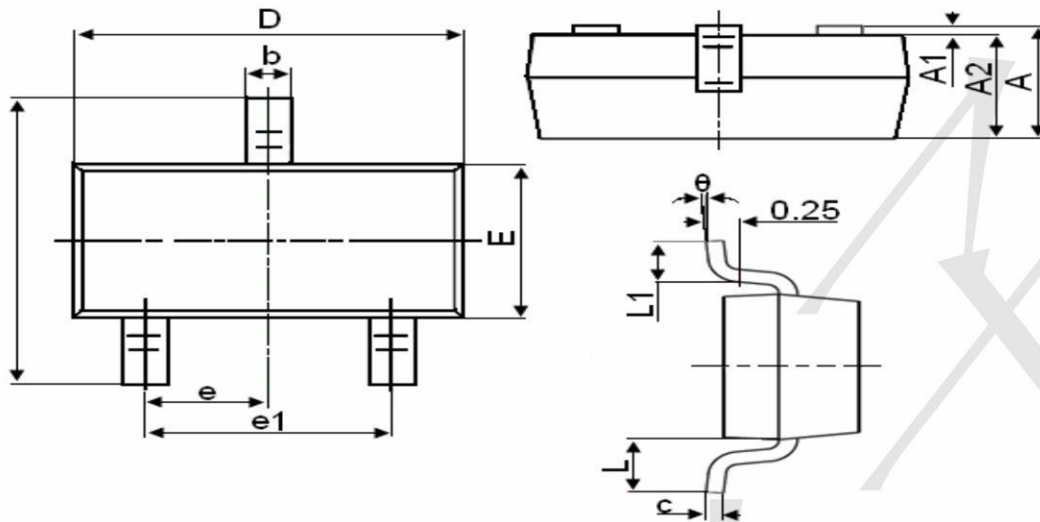
Maximum Safe Operating Area



Normalized Thermal Transient Impedance, Junction-to-Ambient



Package Outline Dimensions (SOT-23)



Symbol	Dimensions in Millimeters	
	MIN.	MAX.
A	0.900	1.150
A1	0.000	0.100
A2	0.900	1.050
b	0.300	0.500
c	0.080	0.150
D	2.800	3.000
E	1.200	1.400
E1	2.250	2.550
e	0.950TYP	
e1	1.800	2.000
L	0.550REF	
L1	0.300	0.500
θ	0°	8°

Marking:



“C18” is Part number, fixed
“x” is internal code