

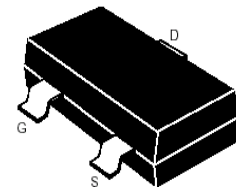
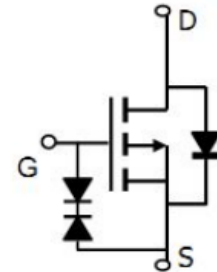
»Features

$V_{DS} = -20V$
 $I_D = -4.8A$
 $R_{DS(ON)} @V_{GS} = -4.5V, TYP = 45m\Omega$
 $R_{DS(ON)} @V_{GS} = -2.5V, TYP = 65m\Omega$

»General Description

- Load Switch
- Switching circuits
- High-speed line driver
- HMB ESD Protection 2KV
- SOT-23 for Surface Mount Package.

»Pin Configurations



»Absolute Maximum Ratings @ $T_A=25^\circ C$ unless otherwise noted

Symbol	Parameter	Rating	Unit
Common Ratings ($T_A=25^\circ C$ Unless Otherwise Noted)			
V_{GS}	Gate-Source Voltage	± 8	V
$V_{(BR)DSS}$	Drain-Source Breakdown Voltage	-20	V
T_J	Maximum Junction Temperature	150	$^\circ C$
T_{STG}	Storage Temperature Range	-50 to 150	$^\circ C$
Mounted on Large Heat Sink			
I_{DM}	Pulse Drain Current Tested①	$T_A = 25^\circ C$	-30 A
I_D	Continuous Drain Current	$T_A = 25^\circ C$	-4.8 A
		$T_A = 70^\circ C$	-3.6 A
P_D	Maximum Power Dissipation	$T_A = 25^\circ C$	1.5 W
		$T_A = 70^\circ C$	1.0 W
$R_{\theta JA}$	Thermal Resistance Junction-Ambient	80	$^\circ C/W$

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

Symbol	Parameter	Condition	Min	Typ	Max	Unit
Static Electrical Characteristics @ $T_J = 25^{\circ}\text{C}$ (unless otherwise stated)						
$V_{(BR)DSS}$	Drain-Source Breakdown Voltage	$V_{GS}=0V, I_D=-250\mu A$	-20	--	--	V
I_{DSS}	Zero Gate Voltage Drain Current($T_A=25^{\circ}\text{C}$)	$V_{DS}=-20V, V_{GS}=0V$	--	--	-1	μA
	Zero Gate Voltage Drain Current($T_A=125^{\circ}\text{C}$)	$V_{DS}=-16V, V_{GS}=0V$	--	--	-100	μA
I_{GSS}	Gate-Body Leakage Current	$V_{GS}=\pm 8V, V_{DS}=0V$	--	--	± 10	μA
$V_{GS(TH)}$	Gate Threshold Voltage	$V_{DS}=V_{GS}, I_D=-250\mu A$	-0.4	-0.7	-1.2	V
$R_{DS(ON)}$	Drain-Source On-State Resistance②	$V_{GS}=-4.5V, I_D=-4A$	--	37	45	m Ω
$R_{DS(ON)}$	Drain-Source On-State Resistance②	$V_{GS}=-3.3V, I_D=-3A$	--	43	55	m Ω
$R_{DS(ON)}$	Drain-Source On-State Resistance②	$V_{GS}=-2.5V, I_D=-2A$	--	52	65	m Ω
Dynamic Electrical Characteristics @ $T_J = 25^{\circ}\text{C}$ (unless otherwise stated)						
C_{iss}	Input Capacitance	$V_{DS}=-10V, V_{GS}=0V,$ $f=1\text{MHz}$	--	675	--	pF
C_{oss}	Output Capacitance		--	120	--	pF
C_{riss}	Reverse Transfer Capacitance		--	85	--	pF
Q_g	Total Gate Charge	$V_{DS}=-10V$ $I_D=-4A,$ $V_{GS}=-4.5V$	--	14.2	--	nC
Q_{gs}	Gate Source Charge		--	3.2	--	nC
Q_{gd}	Gate Drain Charge		--	5.8	--	nC
Switching Characteristics						
$t_{d(on)}$	Turn on Delay Time	$V_{DD}=-10V,$ $I_D=-2A,$ $R_G=3.3\Omega,$ $V_{GS}=-4.5V$	--	15	--	ns
t_r	Turn on Rise Time		--	11	--	ns
$t_{d(off)}$	Turn Off Delay Time		-	22	--	ns
t_f	Turn Off Fall Time		--	35	--	ns
Source Drain Diode Characteristics						
I_{SD}	Source drain current(Body Diode)	$T_A=25^{\circ}\text{C}$	--	--	-2	A
V_{SD}	Forward on voltage②	$T_J=25^{\circ}\text{C}, I_{SD}=-2A,$ $V_{GS}=0V$	--	-0.83	-1.2	V

Notes: ① Pulse width limited by maximum allowable junction temperature

②Pulse test ; Pulse width $\leq 300\mu s$, duty cycle $\leq 2\%$.

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

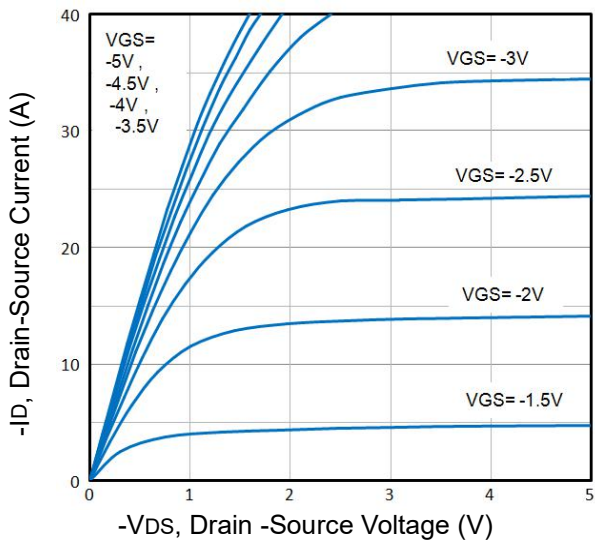


Fig1. Typical Output Characteristics

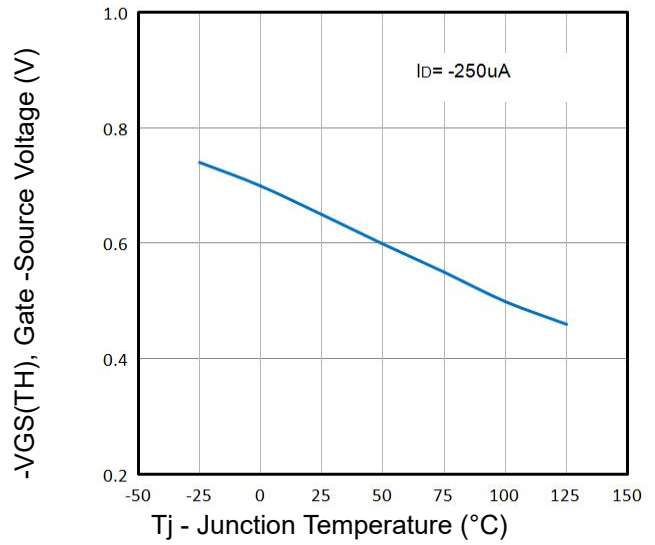


Fig2. Normalized Threshold Voltage Vs. Temperature
T_c, Case Temperature (°C)

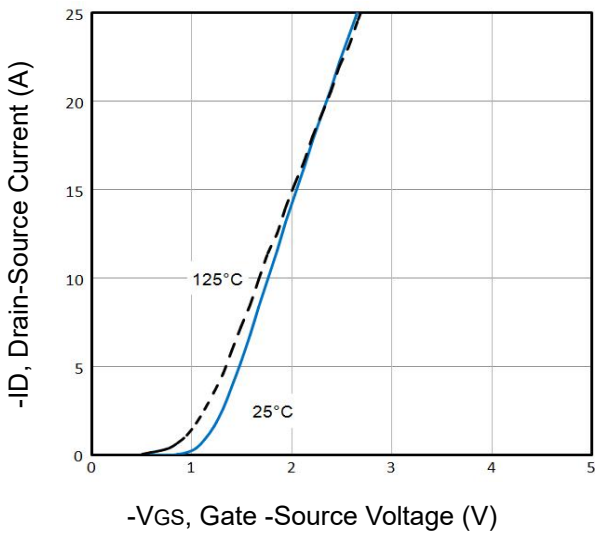


Fig3. Typical Transfer Characteristics

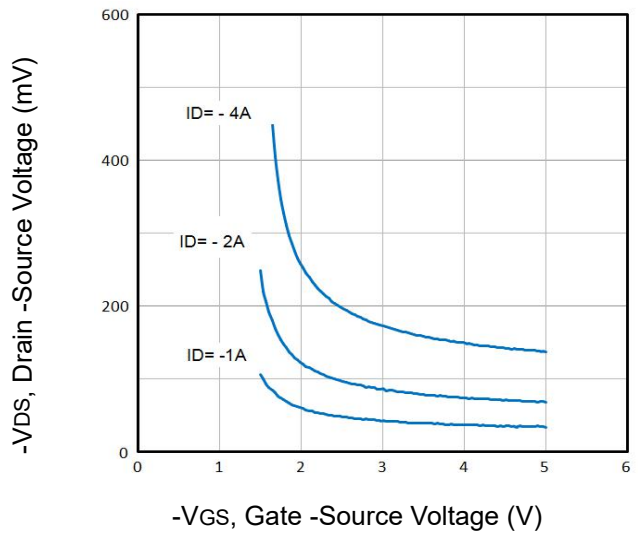


Fig4. Drain -Source Voltage vs Gate -Source Voltage

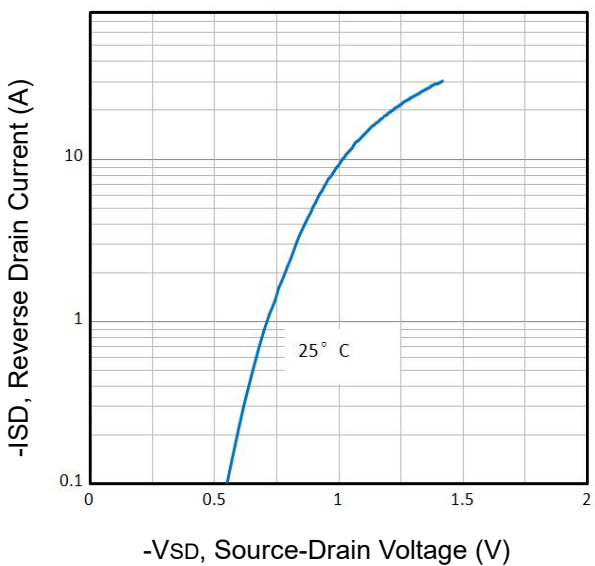


Fig5. Typical Source-Drain Diode Forward Voltage

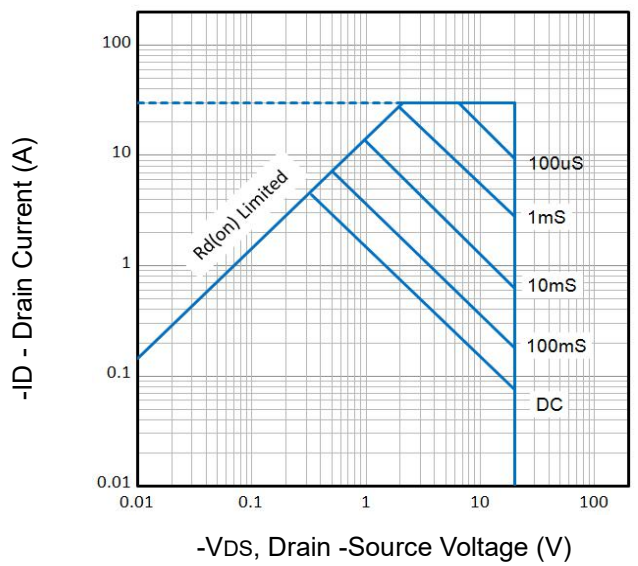


Fig6. Maximum Safe Operating Area

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

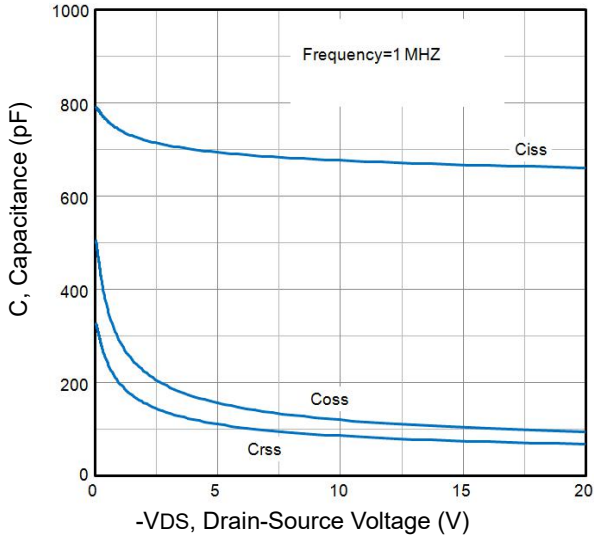


Fig7. Typical Capacitance Vs. Drain-Source Voltage

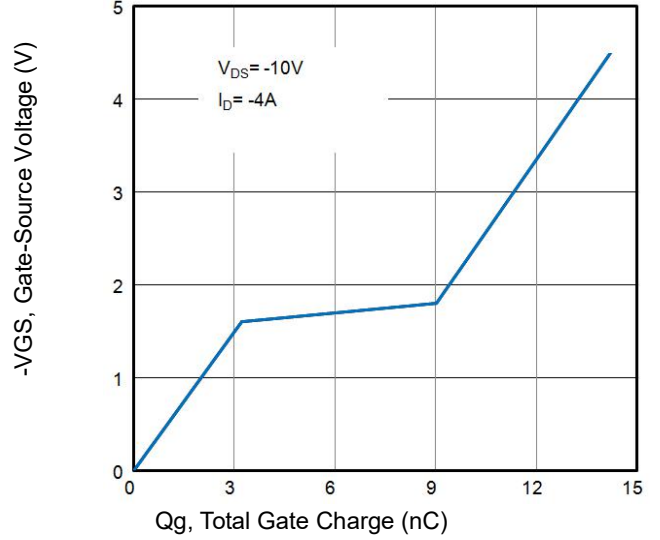


Fig8. Typical Gate Charge Vs. Gate-Source Voltage

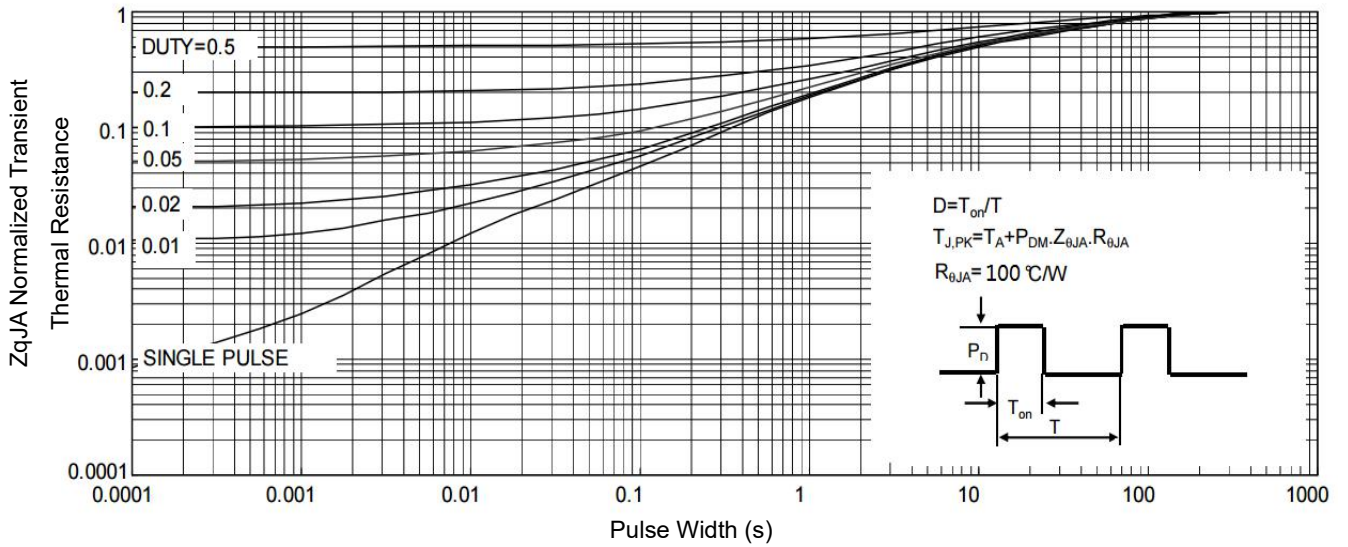
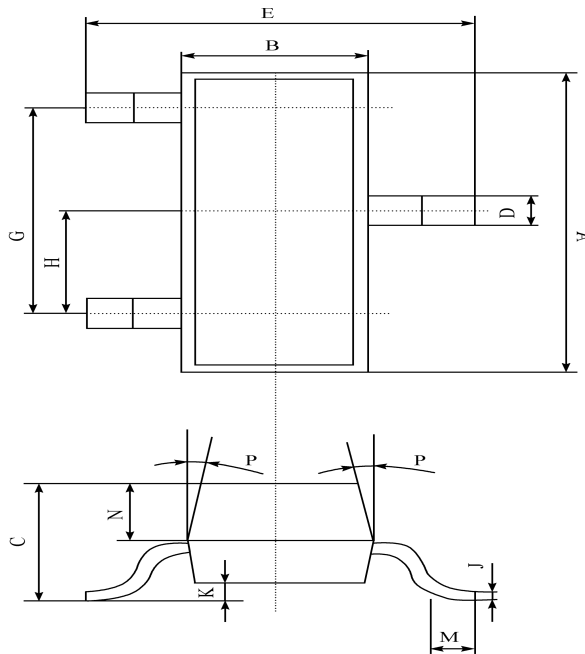


Fig9. Normalized Maximum Transient Thermal Impedance

»Package Information

SOT-23



A	2.90 ± 0.10
B	1.30 ± 0.10
C	1.00 ± 0.10
D	0.40 ± 0.10
E	2.40 ± 0.20
G	1.90 ± 0.10
H	0.95 ± 0.05
J	0.13 ± 0.05
K	$0.00 - 0.10$
M	≥ 0.2
N	0.60 ± 0.10
P	$7 \pm 2^\circ$

»Ordering information

Order code	Package	Marking	Base qty	Delivery mode
AO3415E	SOT-23	3415E	3K	Tape and reel

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