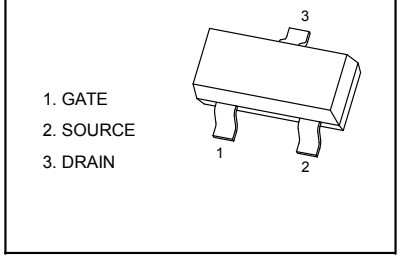
AO3407

SOT-23 Plastic-Encapsulate MOSFETS

30V P-Channel Advanced Power MOSFET

$V_{(BR)DSS}$	$R_{DS(on)}$Typ	I_D Max
-30V	43mΩ@ -10V	- 4.1A
	66mΩ@ -4.5V	

SOT-23



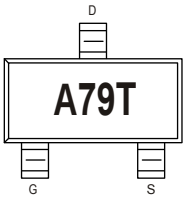
FEATURE

- Low $R_{DS(on)}$ @V_{GS}=-10V
- -5V Logic Level Control

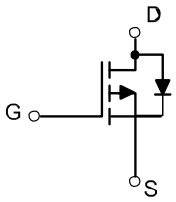
APPLICATION

- Load Switch
- Switching circuits
- High-speed line driver
- Power Management Functions

MARKING



Equivalent circuit



PACKAGE SPECIFICATIONS

Package	Reel Size	Reel DIA. (mm)	Q'TY/Reel (pcs)	Box Size (mm)	QTY/Box (pcs)	Carton Size (mm)	Q'TY/Carton (pcs)
SOT-23	7'	178	3000	203×203×195	45000	438×438×220	180000

Maximum Ratings and Thermal Characteristics (TA = 25°C unless otherwise noted)

Parameter		Symbol	Limit	Unit
Drain-Source Voltage		V_{DS}	-30	V
Gate-Source Voltage		V_{GS}	±20	
Continuous Drain Current	T_A= 25°C	I_D	-4.1	A
	T_A= 70°C		-3.2	
Pulsed Drain Current [1]		I_{DM}	-16.4	A
Maximum Power Dissipation [1],[2]	T_A= 25°C	P_D	1.2	W
	T_A= 70°C		0.9	
Maximum Junction Temperature		T_J	150	°C
Storage Temperature Range		T_{stg}	-50 to 150	°C
Thermal Resistance from Junction-to-Ambient (t≤5s)		$R_{\theta JA}$	80	°C/W

Notes
1) Pulse width limited by maximum junction temperature.
2) Surface Mounted on FR4 Board, t ≤ 5 sec.

The above data are for reference only.

MOSFET ELECTRICAL CHARACTERISTICS

T_a=25℃ unless otherwise specified

Parameter	Symbol	Test Condition	Min	Typ	Max	Units
Static						
Drain-source breakdown voltage	$V_{(BR)DSS}$	V_{GS} = 0V, I_D=-250μA	-30			V
Gate-body leakage	I_{GSS}	V_{GS}=±20V, V_{DS}=0V			±100	nA
Zero gate voltage drain current	I_{DSS}	V_{DS} =-30V, V_{GS} =0V			-1	μA
		V_{DS} =-24V, V_{GS} =0V			-100	μA
Gate-threshold voltage (note 1)	$V_{GS(th)}$	V_{DS} =V_{GS}, I_D =-250μA	-1.2	-1.6	-2.5	V
Drain-source on-resistance (note 1)	$R_{DS(on)}$	V_{GS} =-10V, I_D =-4A		43	55	mΩ
		V_{GS} =-4.5V, I_D =-3A		66	80	
Forward transconductance (note 1)	g_{FS}	V_{DS} =-5V, I_D =-4A	5.5			S
Dynamic characteristics (note 2)						
Total Gate C harge	Q_g	V_{DS} =-15V,I_D=-4A,V_{GS} =-10V		8.2		nC
Gate-Source Charge	Q_{gs}			0.8		
Gate-Drain Charge	Q_{gd}			2.7		
Input capacitance	C_{iss}	V_{DS} =-15V,V_{GS} =0V, f=1MHz		493		pF
Output capacitance	C_{oss}			65		
Reverse transfer capacitance	C_{rss}			44		
Switching characteristics						
Turn-on delay time (note 2)	$t_{d(on)}$	V_{DD}=-15V, V_{GS}=-10V, I_D =-1A,R_G=3.3Ω		7.2		ns
Rise time (note 2)	t_r			4.8		
Turn-off delay time (note 2)	$t_{d(off)}$			25		
Fall time (note 2)	t_f			8.5		
Drain-source body diode characteristics						
Source drain current(Body Diode)	I_{SD}				-2	A
Body diode forward voltage (note 1)	V_{SD}	I_{SD}=-4A, V_{GS} = 0V		-0.88	-1.2	V

Notes :

1. Pulse Test : Pulse Width≤ 300μs, Duty Cycle≤ 2 %.
2. These parameters have no way to verify.

Typical Characteristics

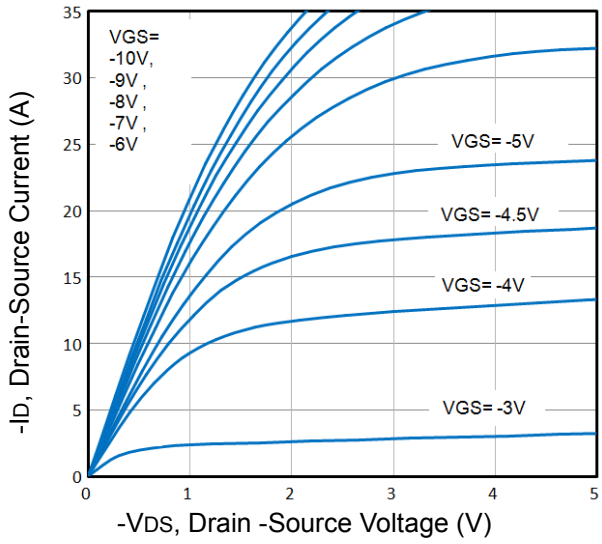


Fig1. Typical Output Characteristics

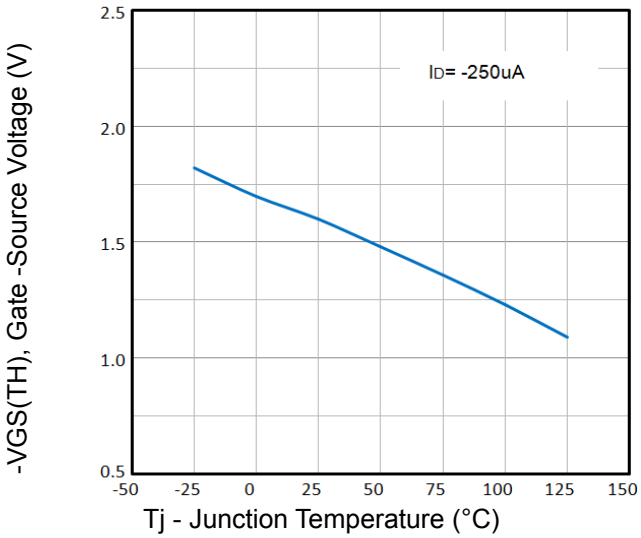


Fig2. Normalized Threshold Voltage Vs. Temperature

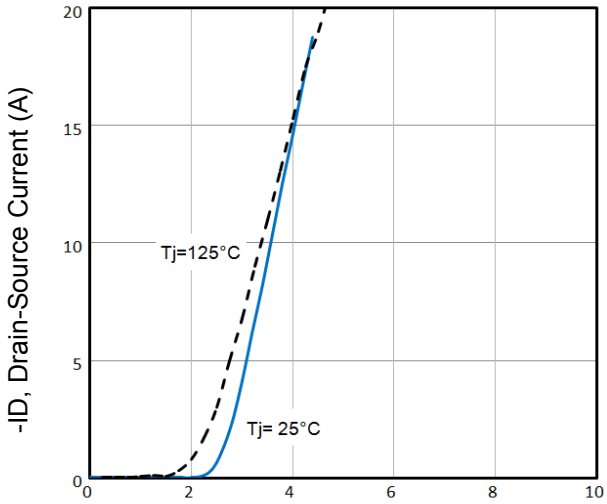


Fig3. Typical Transfer Characteristics

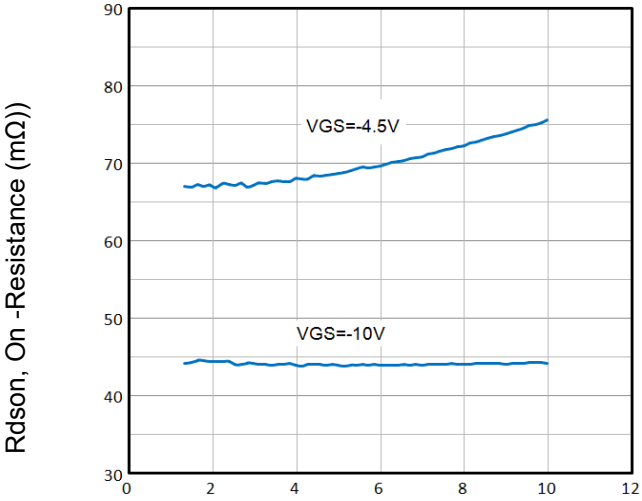


Fig4. On-Resistance vs. Drain Current and Gate

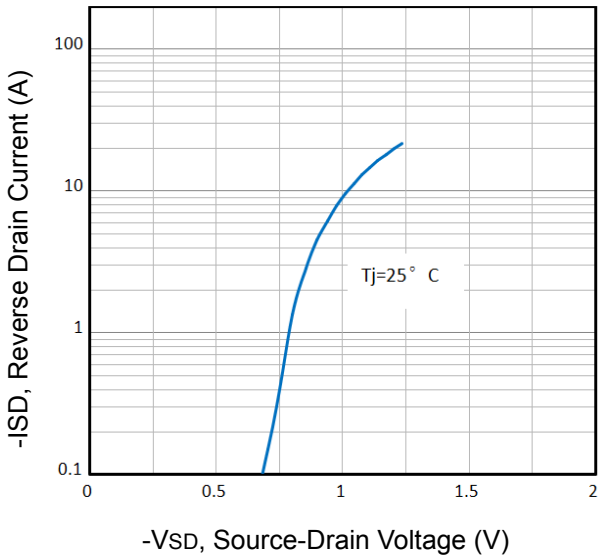


Fig5. Typical Source-Drain Diode Forward Voltage

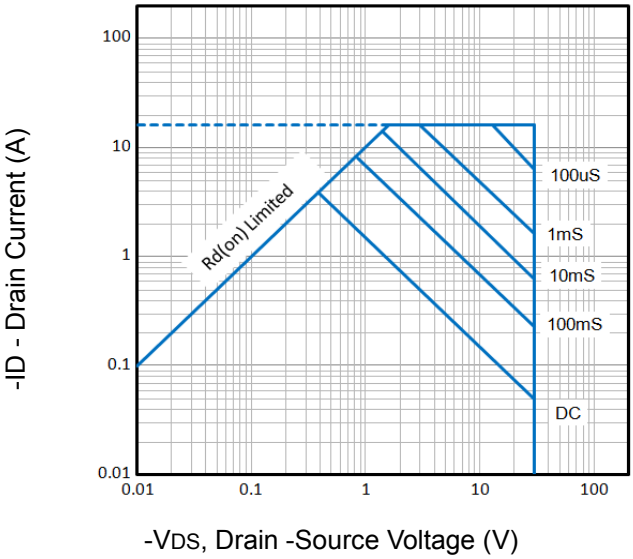


Fig6. Maximum Safe Operating Area

Typical Characteristics

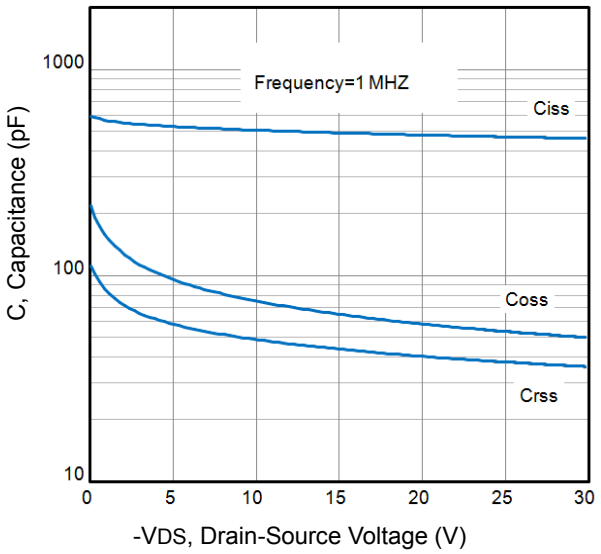


Fig7. Typical Capacitance Vs. Drain-Source Voltage

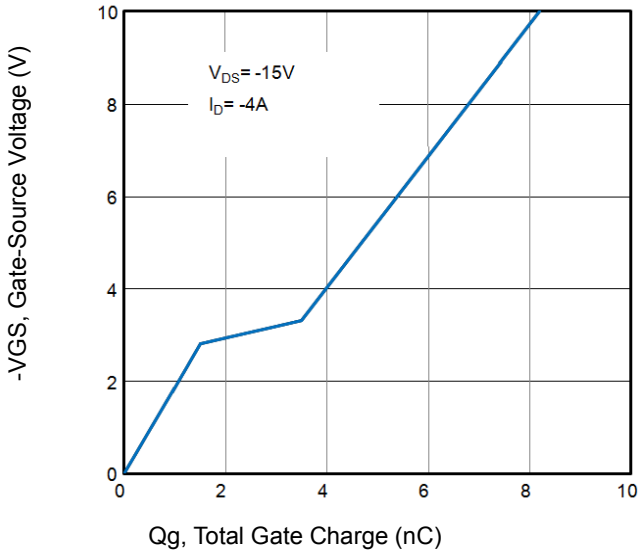


Fig8. Typical Gate Charge Vs. Gate-Source Voltage

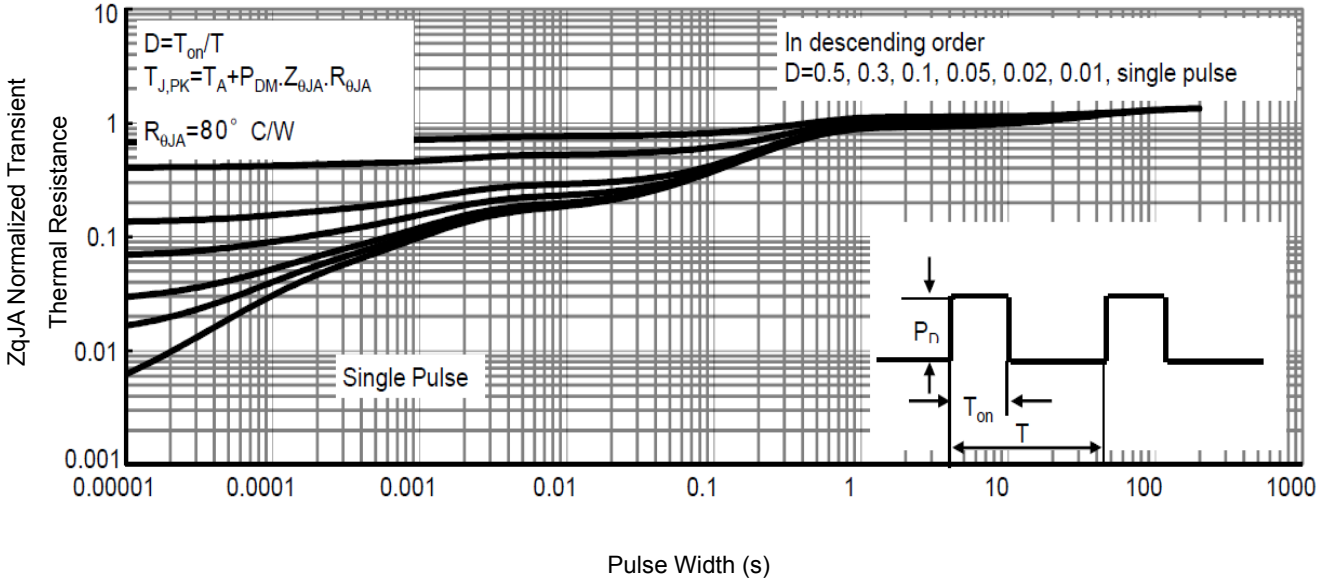


Fig9. Normalized Maximum Transient Thermal Impedance

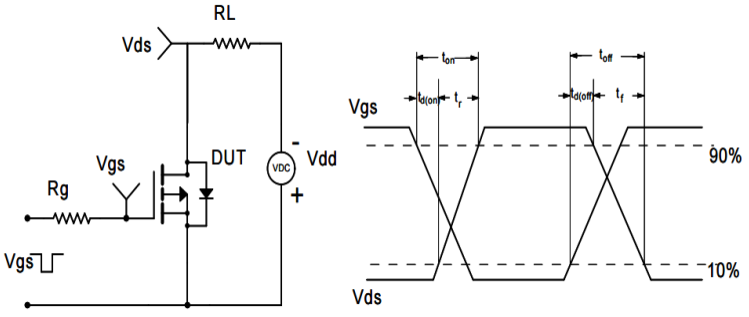
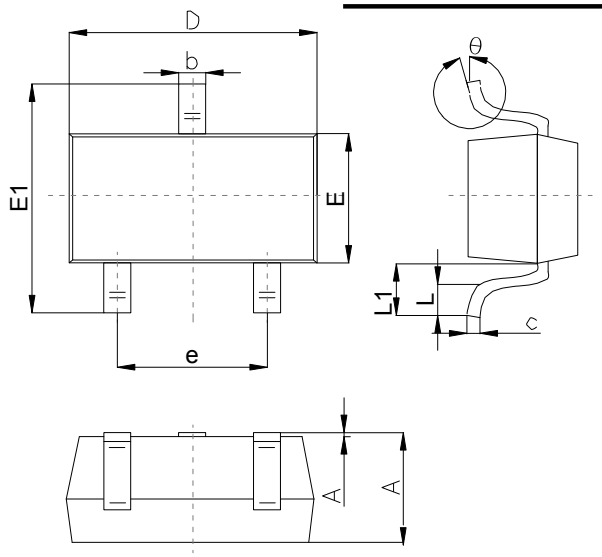


Fig10. Switching Time Test Circuit and waveforms

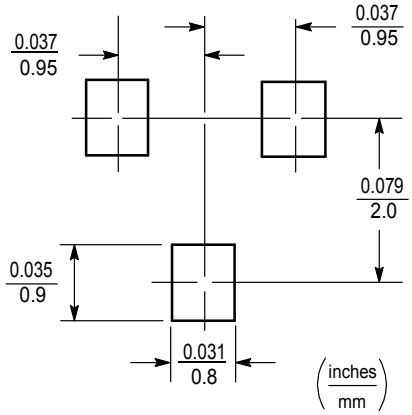
Outlitne Drawing

SOT-23 Package Outline Dimensions



Symbol	Dimensions In Millimeters		
	Min	Typ	Max
A	1.00		1.40
A1			0.10
b	0.35		0.50
c	0.10		0.20
D	2.70	2.90	3.10
E	1.40		1.60
E1	2.4		2.80
e		1.90	
L	0.10		0.30
L1	0.4		
θ	0°		10°

Suggested Pad Layout



Note:
1. Controlling dimension:in/millimeters. 2.General tolerance: ±0.05mm.
3.The pad layout is for reference purposes only.