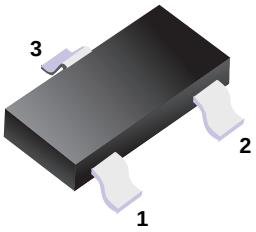
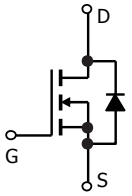
■N-Channel Enhancement MOSFET





1. Gate
2. Source
3. Drain

■ Simplified outline(SOT-23)



■ Marking Code:A09T

MAXIMUM RATINGS (TA=25℃ unless otherwise noted)

Symbol	Parameter	Value	Units
V_{DS}	Drain-Source voltage	20	V
V_{GS}	Gate-Source voltage	±10	V
I_D	Drain current	5	A
P_D	Power Dissipation	1.25	W
Tj	Junction Temperature	150	℃
Tstg	Storage Temperature	-55-150	℃

ELECTRICAL CHARACTERISTICS (Tamb=25℃unless otherwise specified)

Parameter	Symbol	Test conditions	MIN	TYP	MAX	UNIT
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	V_{GS}=0V,I_D=250uA	20			V
Gate-Threshold Voltage	$V_{th(GS)}$	V_{DS}= V_{GS}, I_D=250 uA	0.5	0.70	1.0	V
Gate-body Leakage	I_{GSS}	V_{DS}=0V, V_{GS}=±10V			±100	nA
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}=20V, V_{GS}=0V			1	uA
Drain-Source On-Resistance	$r_{DS(ON)}$	V_{GS}=2.5V, I_D=4.0A		27	35	mΩ
		V_{GS}=4.5V, I_D=5.0A		20	27	mΩ
Forward Trans conductance	gfs	V_{DS}=5V, I_D=5.8A		25		s
Dynamic Characteristics						
Input Capacitance	Ciss	V_{DS}=10V, V_{GS}=0V, f=1MHz		515		pF
Output Capacitance	Coss			90		
Reverse Transfer Capacitance	Crss			72		
Switching Capacitance						
Turn-on Delay Time	td(on)	V_{DD}=10V, R_L=1.7Ω, V_{GS}=10V R_{GEN}=3.0Ω		3		nS
Turn-on Rise Time	tr			7.5		nS
Turn-off Delay Time	td(off)			20		nS
Turn-off Fall Time	tf			6		nS
Total Gate Charge	Qg	V_{DS}=10V, I_D=5.8A, V_{GS}=10V,		12		nC
Gate-Source Charge	Qgs			1		nC
Gate-Drain Charge	Qgd			2		nC
Drain-Source Diode Characteristics						
Diode Forward Voltage	V_{SD}	V_{GS}=0V, Is=1A		0.75	1.2	V
Diode Forward Current	Is				2.0	A

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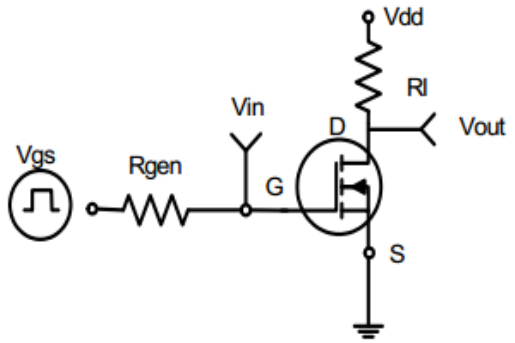


Figure 1:Switching Test Circuit

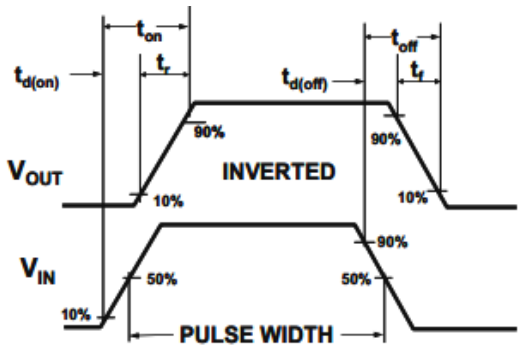


Figure 2:Switching Waveforms

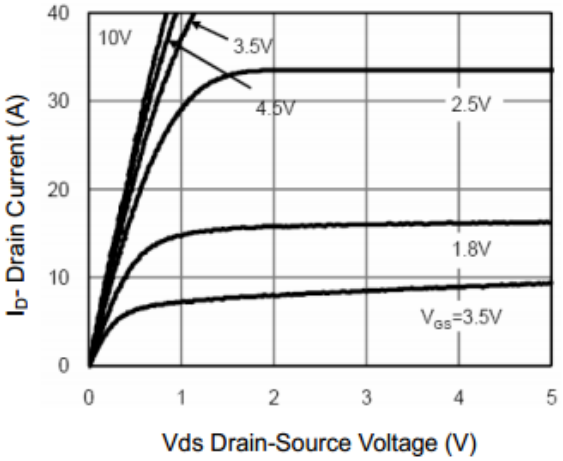


Figure 3 Output Characteristics

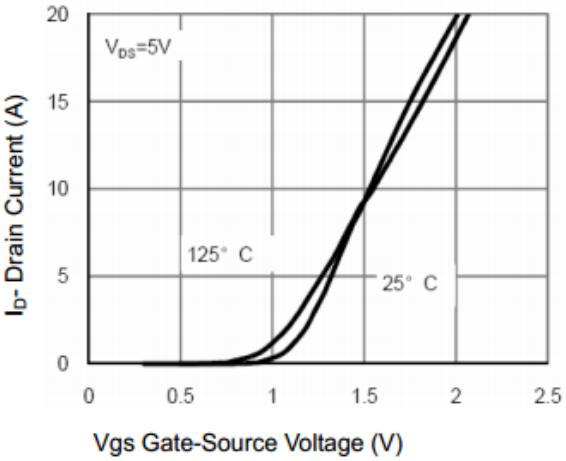


Figure 4 Transfer Characteristics

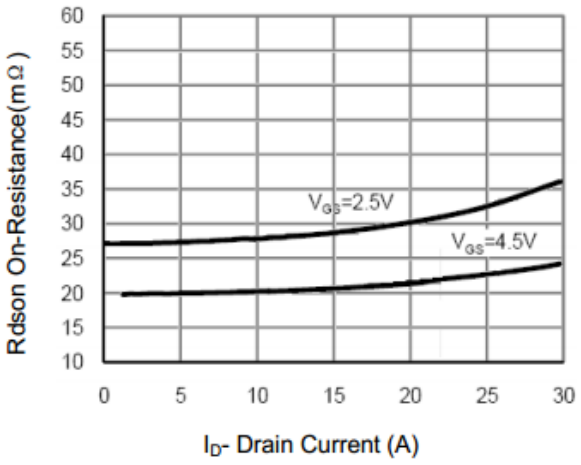


Figure 5 Drain-Source On-Resistance

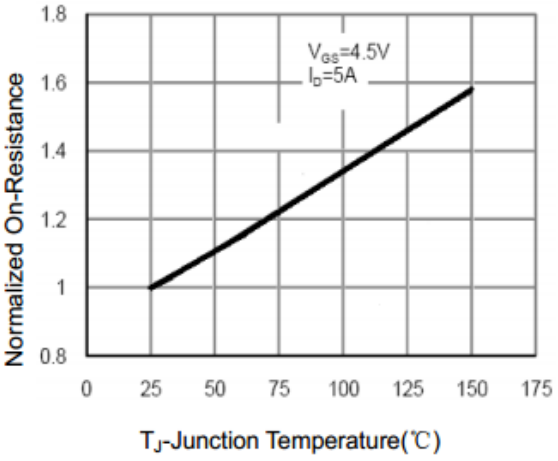


Figure 6 Drain-Source On-Resistance

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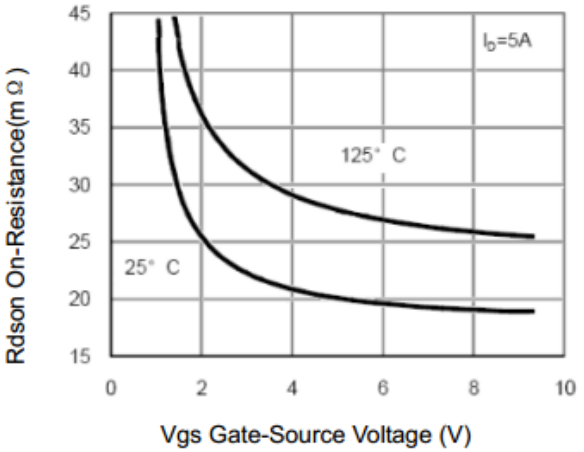


Figure7 Rdson vs Vgs

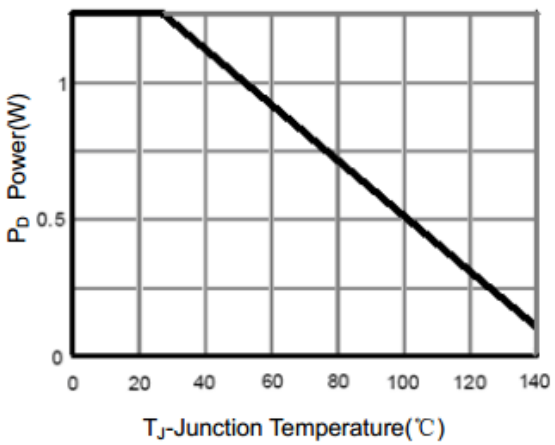


Figure 8 Power Dissipation

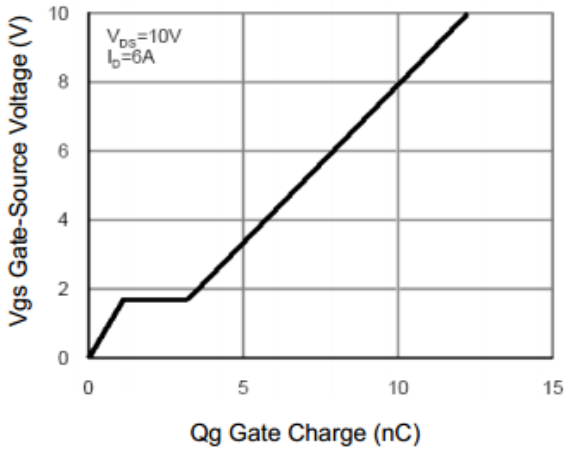


Figure 9 Gate Charge

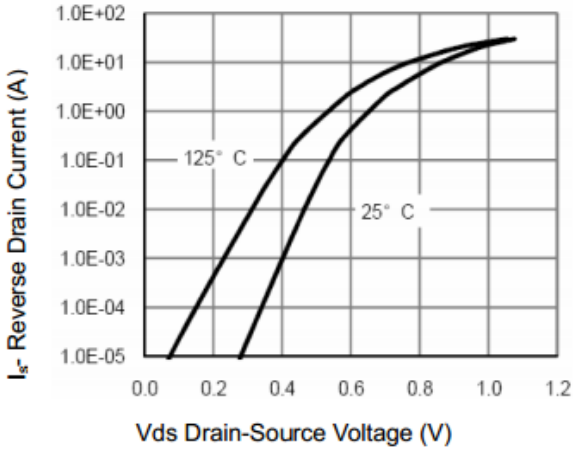


Figure 10 Source- Drain Diode Forward

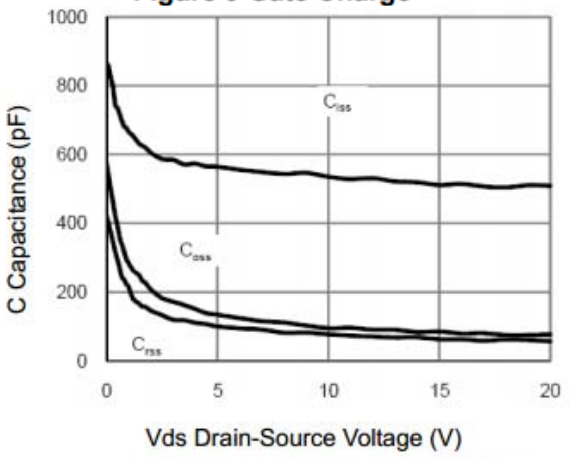


Figure 11 Capacitance vs Vds

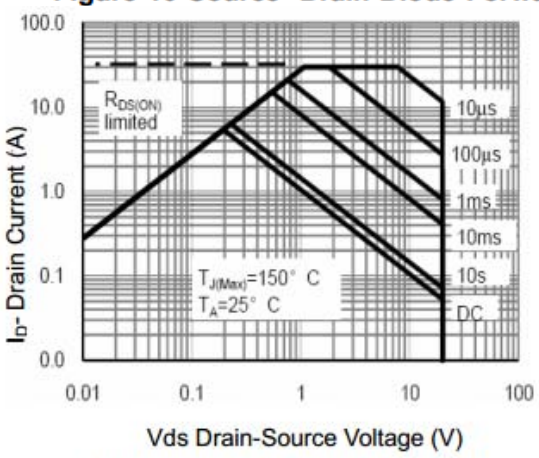
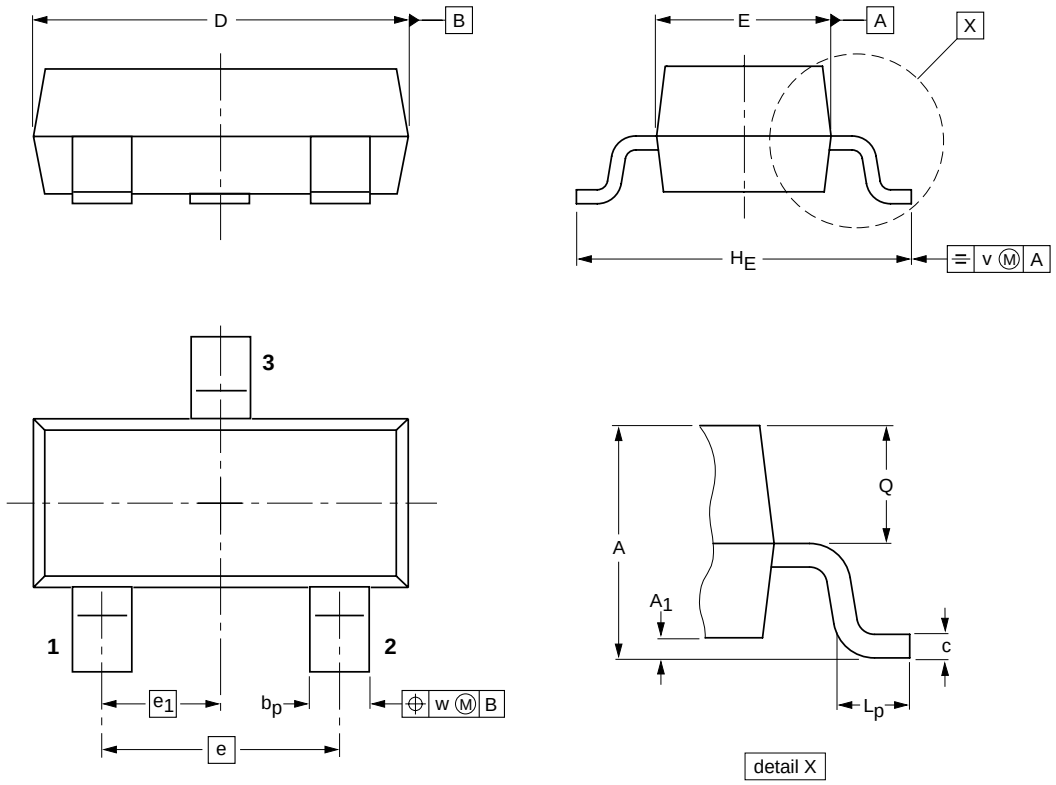


Figure 12 Safe Operation Area

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Package Outline SOT-23



DIMENSIONS (mm are the original dimensions)

UNIT	A	A_1 max.	b_p	c	D	E	e	e_1	H_E	L_p	Q	v	w
mm	1.1 0.9	0.1	0.48 0.38	0.15 0.09	3.0 2.8	1.4 1.2	1.9	0.95	2.5 2.1	0.45 0.15	0.55 0.45	0.2	0.1

Summary of Packing Options

Package	Packing Description	Packing Quantity	Industry Standard
SOT-23	Tape/Reel,7"reel	3000	EIA-481-1

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