



N-Channel MOSFET

Drain Source Voltage - 30V
Continuous Drain Current - 5A

Features

- $V_{DS} = 30V$, $I_D = 5A$
- $R_{DS(ON)} < 28\ m\Omega$ @ $V_{GS} = 10V$
- High Power and Current Handling Capability
- Lead Free Product is Acquired
- Surface Mount Package

Mechanical Data

- Case: SOT23 Package
- Case Material: UL Flammability Classification Rating 94V-0
- Halogen Free
- Component in Accordance to RoHS

Note: Products with logo  or  are made by HY Electronic (Cayman) Limited.

Ordering Information

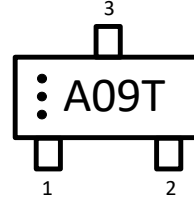
- Package :SOT23
- Reel Size :7 (inches)
- Quantity Per Reel :3,000 pcs
- Quantity One Box :45,000 pcs
- Quantity One Carton :180,000 pcs

Package Outline



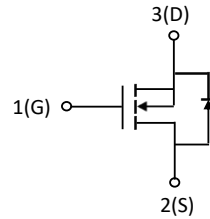
SOT23 Top View

Marking Information



"A09T" = Product Type Marking Code

Device Schematic & PIN Configuration



Maximum Ratings (@TA = +25°C, unless otherwise specified.)

Parameter	Symbol	Rating	Unit
Drain-Source Voltage	V_{DS}	30	V
Gate-Source Voltage	V_{GS}	± 12	V
Continuous Drain Current	I_D	$T_C=25\ ^\circ C$	5.0
		$T_C=70\ ^\circ C$	4.6
Pulsed Drain Current ⁽¹⁾	I_{DM}	18	A
Power Dissipation	P_D	0.72	W
Thermal Resistance Junction to Ambient	$R_{\theta JA}$	$\le 5\ s$	145
		Steady-State	175
Maximum Junction to Foot	$R_{\theta JC}$	78	$^\circ C/W$
Operating and Storage Temperature Range	T_J, T_{STG}	- 55 to 150	$^\circ C$
Maximum lead temperature for soldering purposes, 1/8" from case for 5 seconds	T_L	300	$^\circ C$

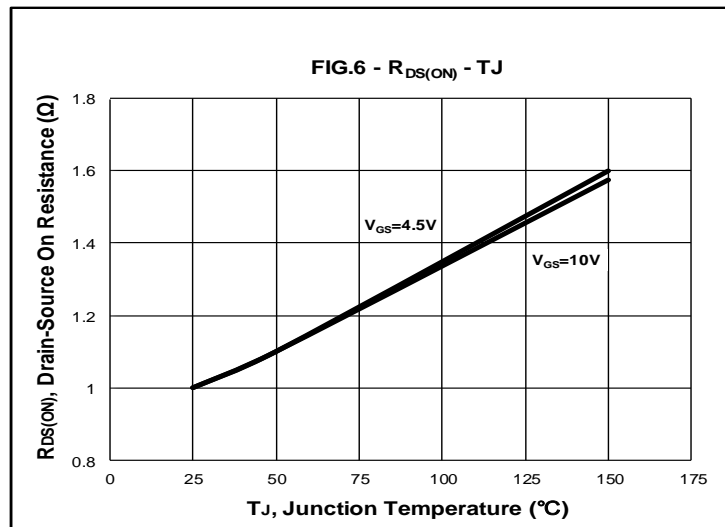
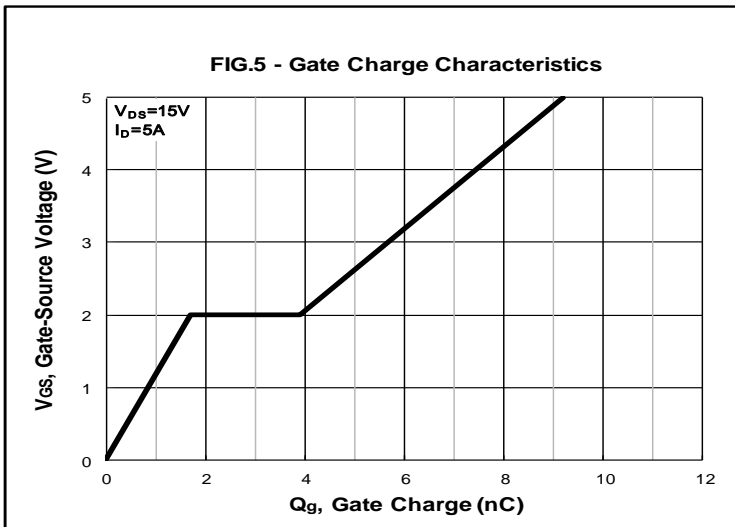
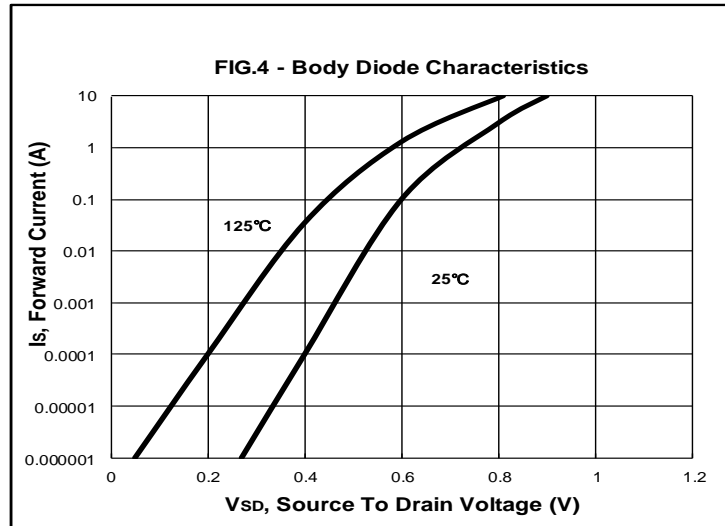
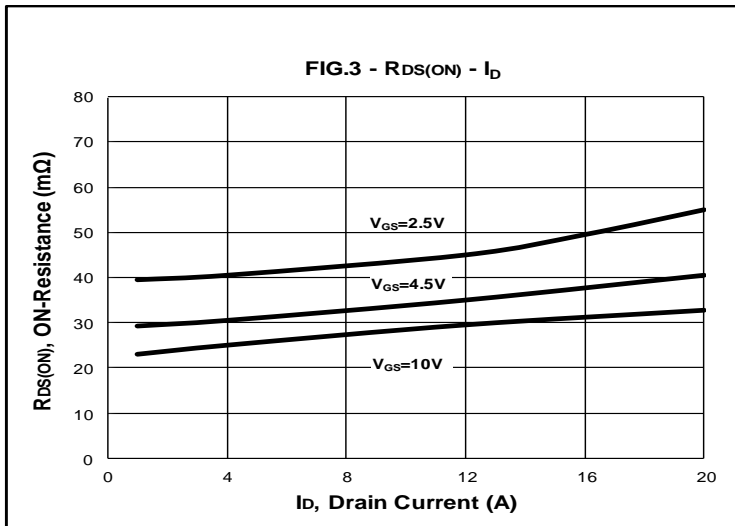
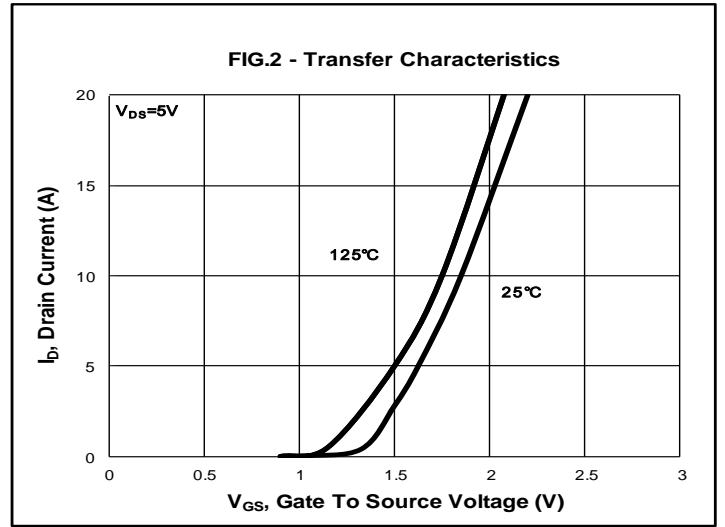
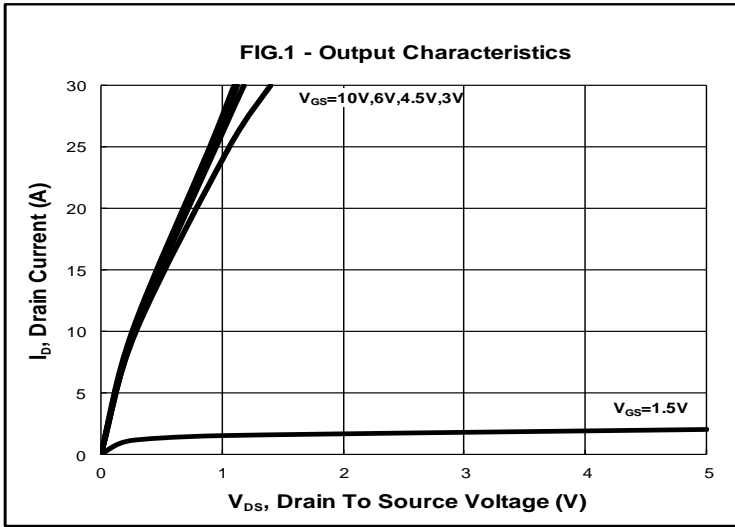
Notes : Repetitive Rating : Pulse Width Limited by Maximum Junction Temperature.

Electrical Characteristics (@T_J = +25°C, unless otherwise specified.)

Parameter	Test Conditions	Symbol	Min	Typ	Max	Unit
Static Characteristics						
Drain-Source Breakdown Voltage	V _{GS} =0V, I _D =250μA	BV _{DSS}	30	-	-	V
Gate Threshold Voltage	V _{DS} =V _{GS} , I _D =250μA	V _{GS(th)}	0.5	0.85	1.3	V
Gate-Source Leakage Current	V _{GS} =±12V, V _{DS} =0V	I _{GSS}	-	-	±100	nA
Zero Gate Voltage Drain Current	V _{DS} =30V, V _{GS} =0V	I _{DSS}	-	-	1	μA
Drain-Source On-Resistance	V _{GS} =10V, I _D =5A	R _{DS(on)}	-	25	28	mΩ
	V _{GS} =4.5V, I _D =4A		-	26	35	
	V _{GS} =2.5V, I _D =3A		-	35	45	
Diode Forward Voltage	V _{GS} =0V, I _S =3A	V _{SD}	-	0.8	1.2	V
Forward Transconductance	V _{DS} =5V, I _D =4.5A	G _{FS}	-	33	-	S
Dynamic Characteristics						
Input Capacitance	V _{DS} =15V, V _{GS} =0V, F=1MHz	C _{iss}	-	630	-	pF
Output Capacitance		C _{oss}	-	76	-	
Reverse Transfer Capacitance		C _{rss}	-	55	-	
Gate Resistance	F=1MHz	R _g	-	1	-	Ω
Total Gate Charge	V _{DS} =15V, V _{GS} =4.5V, I _D =5A	Q _g	-	6	-	nC
Gate Source Charge		Q _{gs}	-	1.3	-	
Gate Drain Charge		Q _{gd}	-	1.8	-	
Turn-On Delay Time	V _{DD} =15V, R _L =2.6Ω, V _{GS} =10V, R _G =3Ω	t _{d(on)}	-	3	-	ns
Turn-On Rise Time		t _r	-	2.5	-	
Turn-Off Delay Time		t _{d(off)}	-	25	-	
Turn-Off Fall Time		t _f	-	4	-	

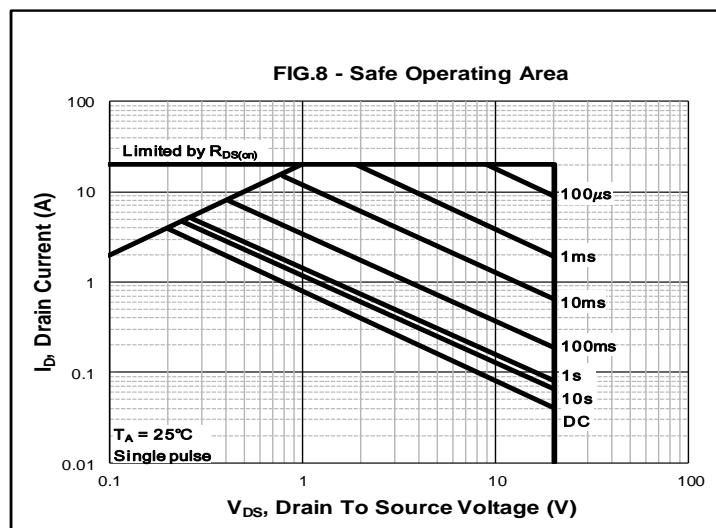
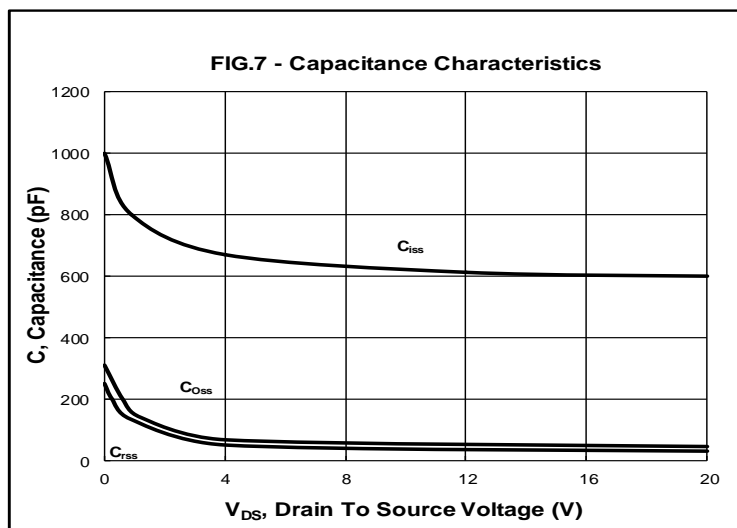


Rating and Characteristic Curves



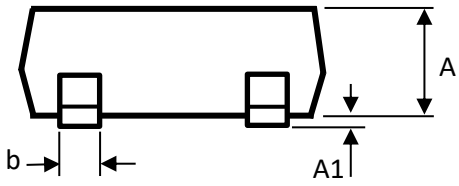
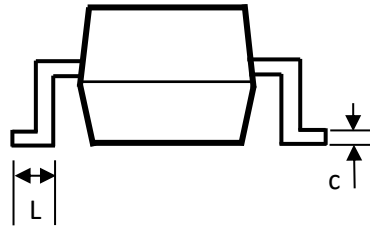
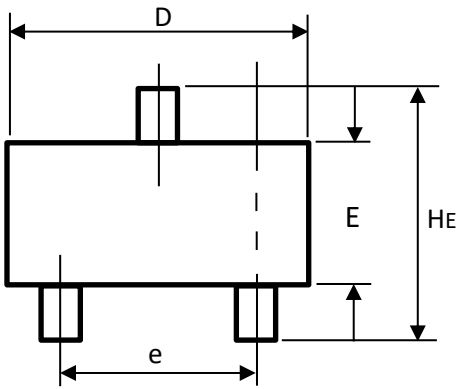


Rating and Characteristic Curves





Package Outline Dimensions



SOT23 Package		
Dim	Min	Max
A	0.87	1.07
A1	0.00	0.10
b	0.30	0.50
c	0.09	0.15
D	2.80	3.00
E	1.20	1.60
e	1.80	2.00
L	0.20	0.45
HE	2.25	2.55
All Dimensions in mm		



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