



HY3400

N-CHANNEL MOSFET

5A, 30V N-CHANNEL ENHANCEMENT MODE POWER MOSFET

DESCRIPTION

The HY3400 is an N-ch enhancement MOSFET providing the customers with perfect $R_{DS(ON)}$ and low gate charge. This device can be operated with 2.5V low gate voltage. The HY3400 is optimized for applications, such as a load switch or in PWM.

The HY3400 meet the ROHS and Green Product requirement with full function reliability approved.

FEATURE

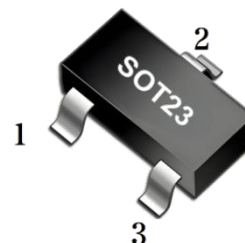
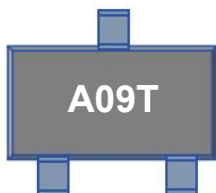
- *High dense cell design for extremely low $R_{DS(ON)}$
- *Exceptional on-resistance and maximum DC current capability

APPLICATION

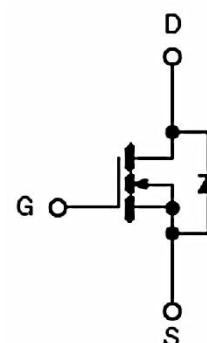
- * Load/Power Switching
- * Interfacing Switching

MARKING

Type Code: Marking: A09T



Equivalent Circuit



ABSOLUTE MAXIMUM RATINGS(TA=25°C, unless otherwise specified.)

SYMBOL	PARAMETER	VALUE	UNIT
VDS	Drain-Source Voltage	30	V
VGS	Gate Source Voltage	±12	V
ID	Continuous Drain Current	5	A
IDM	Pulsed Drain Current(note 1)	30	A
PD	Power Dissipation(Note 4)	2	W
TJ	Junction Temperature	150	°C
TSTG	Storage Temperature	-55~150	°C
RθJA	Thermal Resistance From Junction To Ambient(Note 4)	62.5	°C/W

Notes: Absolute maximum ratings are those values beyond which the device could be permanently damaged.

Absolute maximum ratings are stress ratings only and functional device operation is not implied.



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■ ELECTRICAL CHARACTERISTICS ($T_A=25^{\circ}\text{C}$, unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
OFF CHARACTERISTICS						
Drain-Source Breakdown Voltage	V _{(BR)DSS}	V _{GS} =0V, I _D =250μA	30			V
Gate-Source Leakage Current	I _{GSS}	V _{GS} =±12V, V _{DS} =0V			±100	nA
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} =30V, V _{GS} =0V,T _J =25°C			100	nA
ON CHARACTERISTICS						
Drain-source on-state resistance(Note 2)	R _{DS(ON)}	V _{GS} =10V, I _D =5.6A		43	46	mΩ
		V _{GS} =4.5V, I _D =5.0A	15	35	37	
		V _{GS} =2.5V,I _D =2.0A		57	60	
Gate Threshold Voltage	V _{GS(TH)}	V _{GS} =V _{DS} ,I _D =250μA	0.5	0.9	1.2	V
Forward tranconductance	g _{FS}	V _{DS} =5V, I _D =5A	8			S
DYNAMIC CHARACTERISTICS(Note 3)						
Gate resistance	R _g	V _{DS} =0V,V _{GS} =0V,f =1MHz		3.6		Ω
Input Capacitance	C _{ISS}	V _{GS} =0V,V _{DS} =15V,f=1MHz		820	1050	pF
Output Capacitance	C _{OSS}			99		
Reverse Transfer Capacitance	C _{RSS}			77		
SWITCHING CHARACTERISTICS(Note 3)						
Turn-On Delay Time	td(on)	V _{DS} =15V, R _L =2.7Ω, V _{GS} =10V,R _{GEN} =3Ω		3.3	5	ns
Rise Time	tr			4.8	7	
Turn-Off Delay Time	td(off)			26	40	
Fall Time	tf			4	6	
Total Gate Charge	Q _g	V _{DS} =10V,I _D =5A, V _{GS} =6V		9.5		nC
Gate-Source Charge	Q _{gs}			1.5		
Gate-Drain Charge	Q _{gd}			3		
DRAIN-SOURCE DIODE CHARACTERISTICS AND MAXIMUM RATINGS						
Diode forward voltage (note 2)	V _{SD}	I _S =1A,V _{GS} =0V			1	V
Continuous drain-source diode forward current	I _S				5	A
Pulsed drain-source diode forward current	I _{SM}				30	A

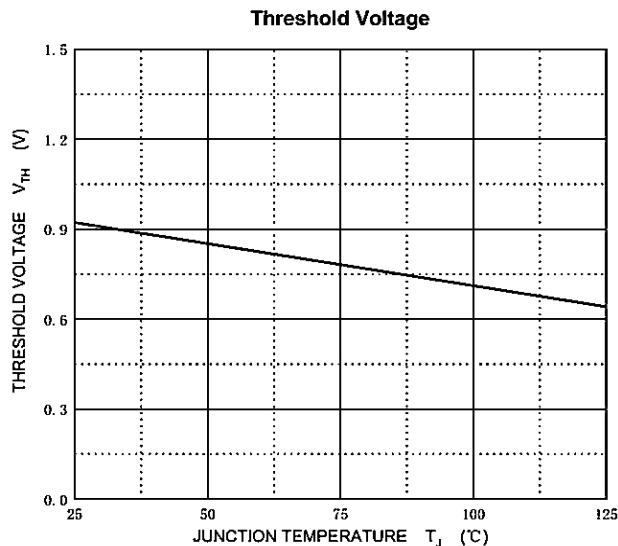
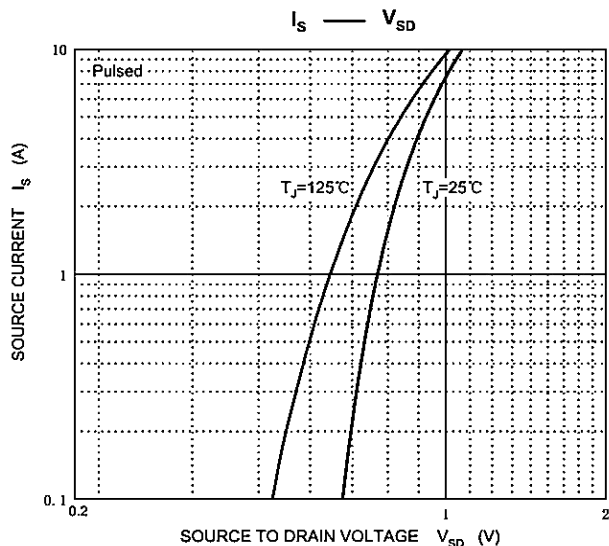
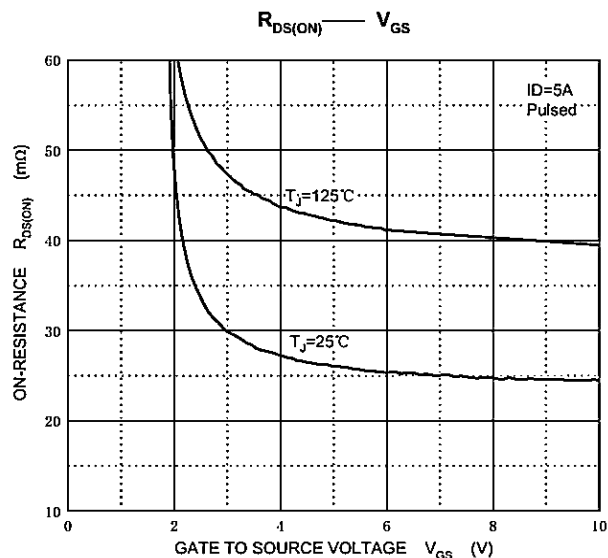
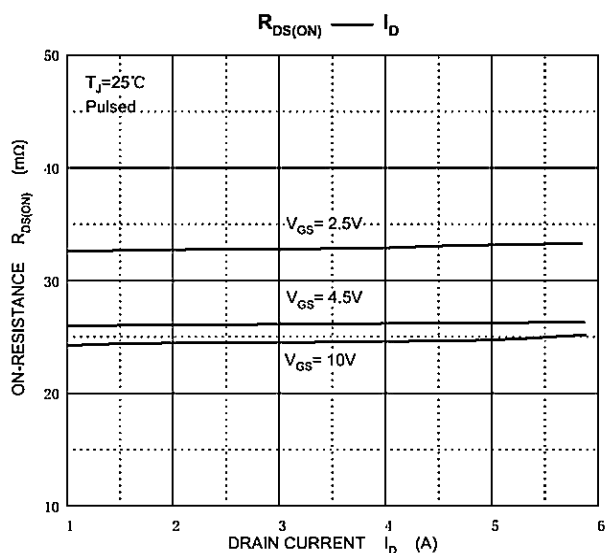
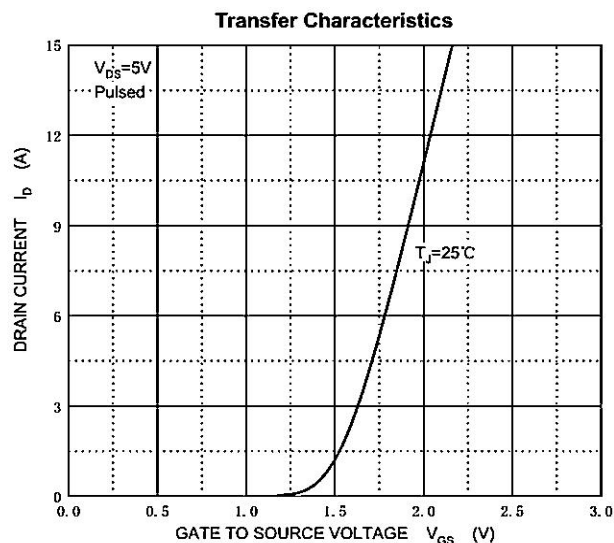
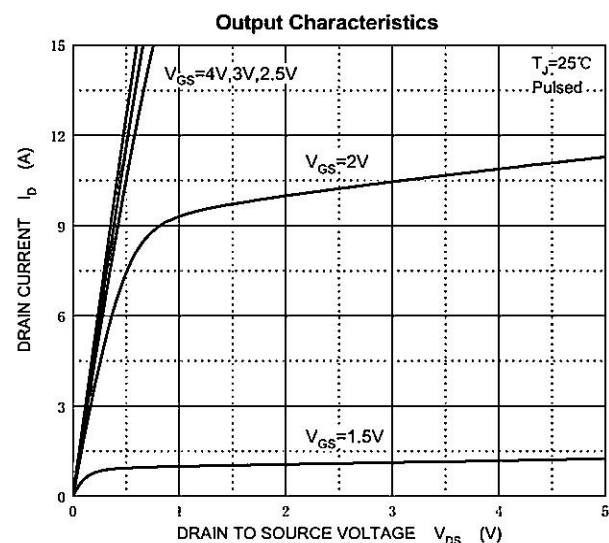
- Notes:
1. Pulse Test : Pulse Width $\leq 300\mu s$, Duty Cycle $\leq 2\%$.
 2. Guaranteed by design, not subject to producing testing.
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 4. Device mounted on 1 in2 FR-4 board with 2oz.double-sided Copper, in a still air environment with $T_A=25^{\circ}\text{C}$.



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TYPICAL CHARACTERISTICS



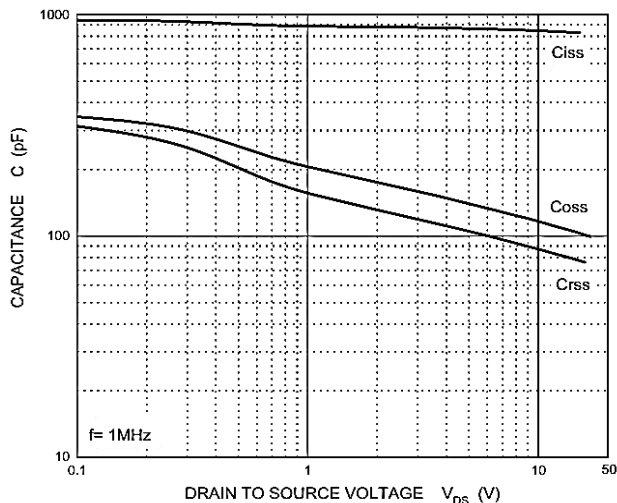


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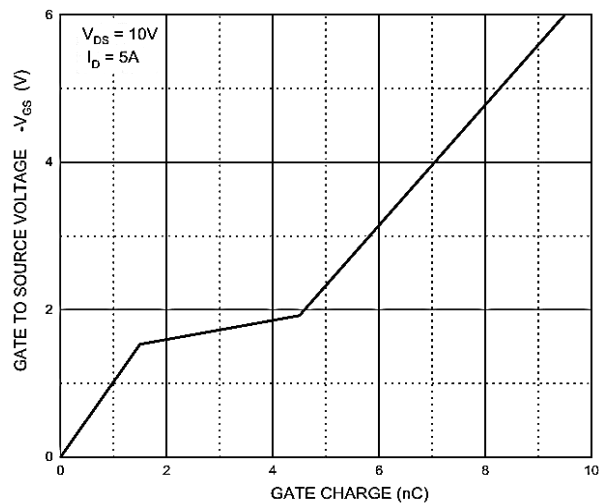
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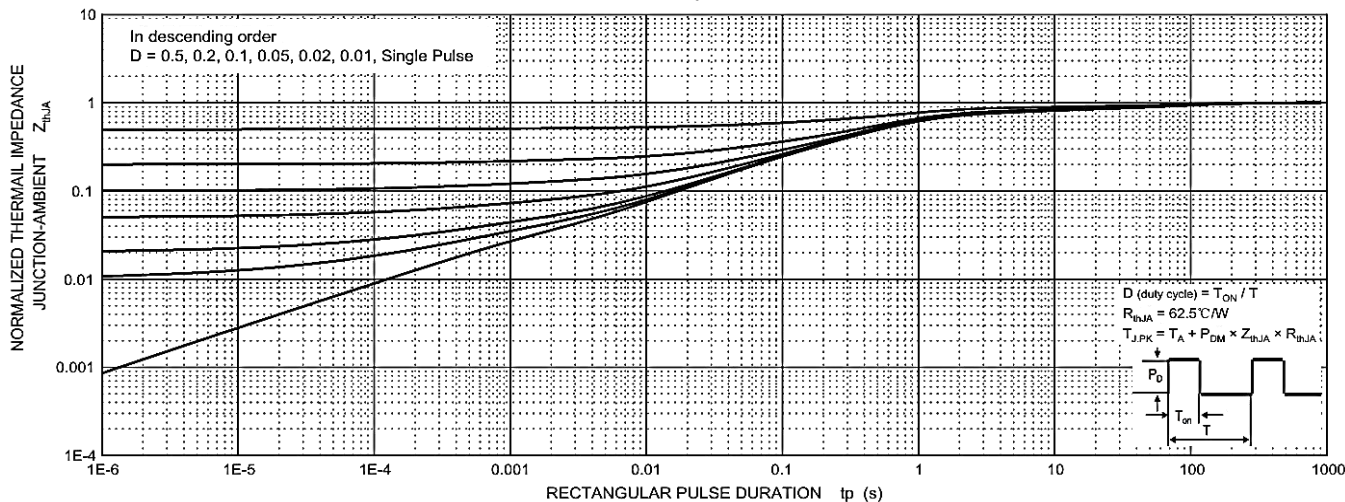
Typical Capacitances



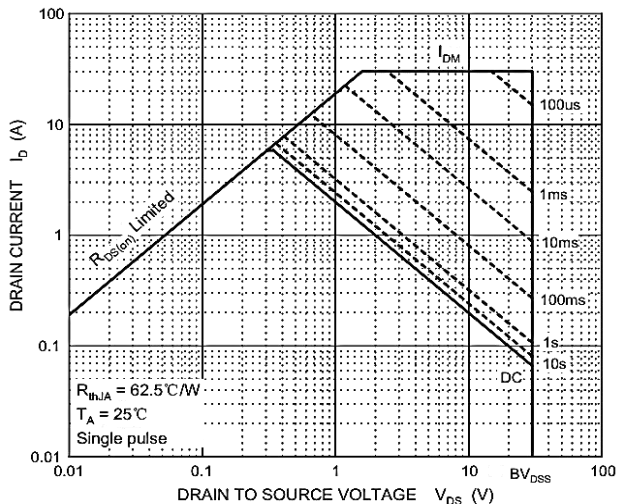
Gate Charge



Transient Thermal Impedance, Junction-Ambient



Maximum Safe Operating Area

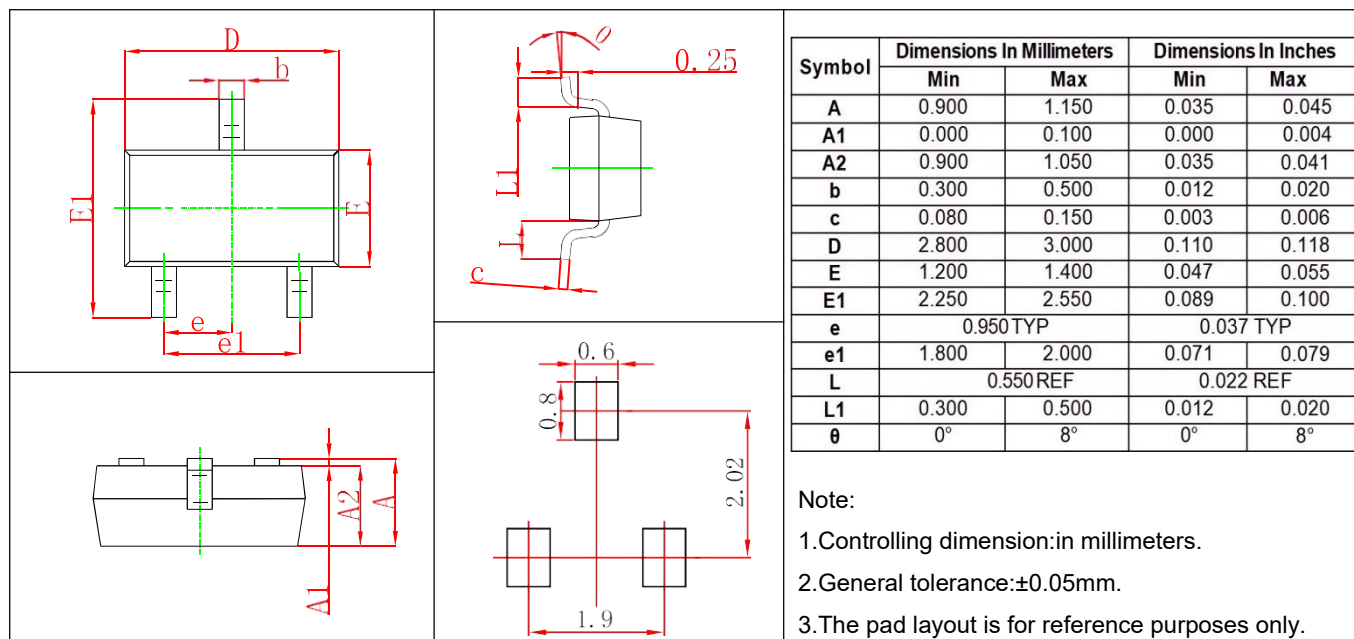




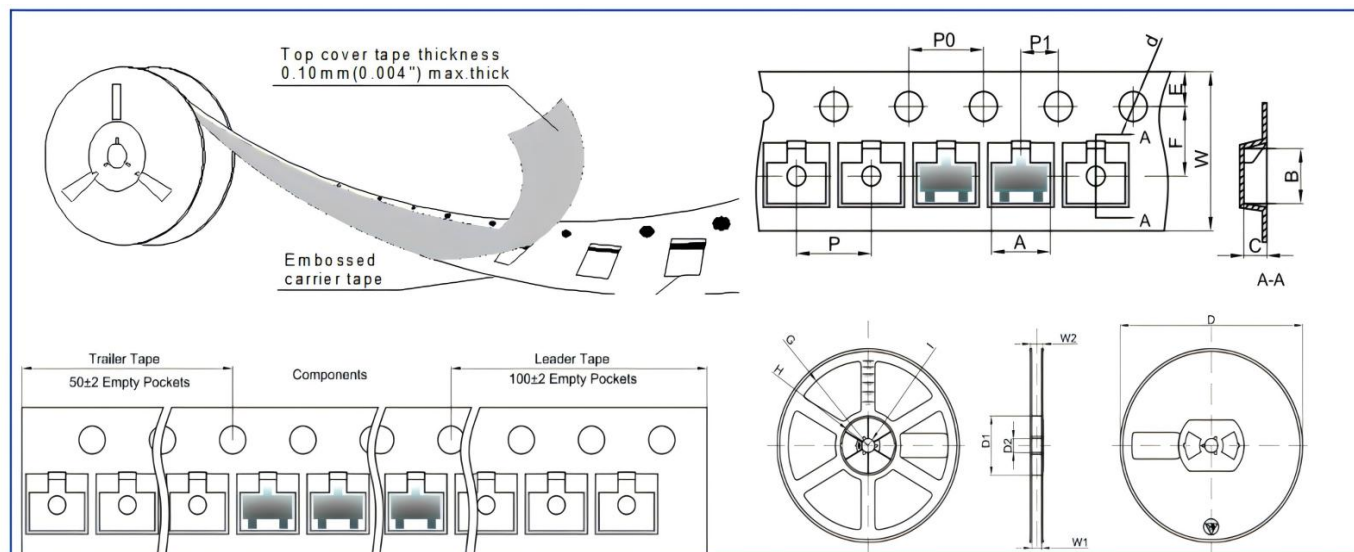
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SOT23 PACKAGE OUTLINE DIMENSIONS



REEL PACKING



Dimensions are in millimeter

PKG TYPE	A	B	C	d	E	F	Po	P	P1	W
SOT-23	3.15	2.77	1.22	Φ1.50	1.75	3.50	4.00	4.00	2.00	8.00
Reel Option	D	D1	D2	G	H	I	W1	W2	Q.TY PER REEL	
7" Dia	Φ178.0	54.40	13.00	R78.00	R25.60	R6.50	9.50	12.30	3000PCS	
13" Dia	Φ330.0	/	13.00	/	/	R6.50	9.50	12.30	10000PCS	