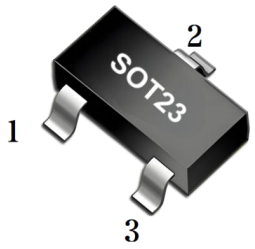
5.8A, 30V N-CHANNEL ENHANCEMENT MODE POWER MOSFET

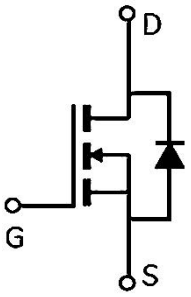
■ DESCRIPTION

The HY3404 use advanced trench technology to provide excellent RDS(ON) and low gate charge. This device is suitable for use as a load switch or in PWM applications.The source leads are separated to allow a Kelvin connection to the source,which may be used to bypass the source inductance.

The HY3404 meet the ROHS and Green Product requirement with full function reliability approved.

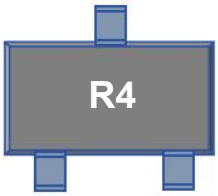


Equivalent Circuit



■ MARKING

Type Code: Marking: R4



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

SYMBOL	PARAMETER	VALUE	UNIT
VDS	Drain-Source Voltage	30	V
VGS	Gate Source Voltage	±20	V
ID	Continuous Drain Current (t ≤10s)	5.8	A
IDM*	Pulsed Drain Current	30	A
PD	Power Dissipation	0.35	W
TJ	Junction Temperature	150	°C
TSTG	Storage Temperature	-55~150	°C
RθJA	Thermal Resistance From Junction To Ambient	357	°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.
* Repetitive rating : Pulse width limited by junction temperature.

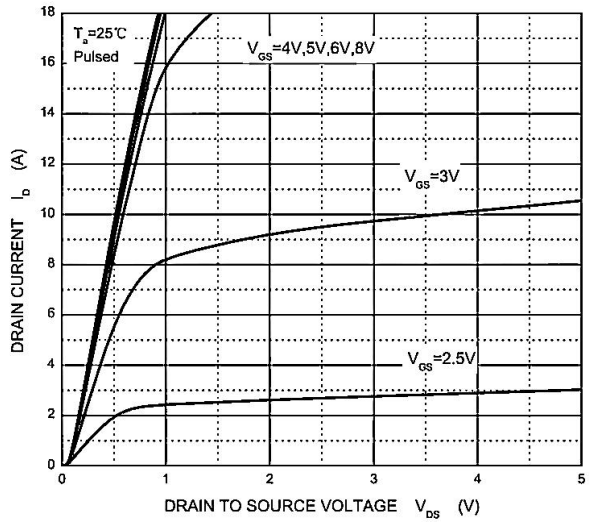
■ ELECTRICAL CHARACTERISTICS (TA=25°C, unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
STATIC CHARACTERISTICS						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	V_{GS}=0V, I_D=250μA	30			V
Gate-Source Leakage Current	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
Gate threshold voltage	$V_{GS(th)}$	V_{DS} =V_{GS}, I_D =250μA	1	1.4	3	V
Drain-source on-state resistance(Note 1)	$R_{DS(ON)}$	V_{GS}=10V, I_D=5.8A		23	30	mΩ
		V_{GS}=4.5V,I_D=4.8A		31	42	
Diode forward voltage	V_{SD}	V_{GS}=0V,I_S =1A			1	V
Forward tranconductance(Note 1)	g_{FS}	V_{DS} =5V, I_D=5.8A	5			S
DYNAMIC CHARACTERISTICS(Note 2)						
Input Capacitance	C_{ISS}	V_{GS}=0V,V_{DS}=15V,f=1MHz			820	pF
Output Capacitance	C_{OSS}			118		
Reverse Transfer Capacitance	C_{RSS}			85		
SWICHING CHARACTERISTICS(Note 2)						
Turn-On Delay Time	td(on)	V_{DS}=15V, R_L=2.6Ω, V_{GS}=10V,R_{GEN}=3Ω			6.5	ns
Turn-on rise time	tr			3.1		
Turn-Off Delay Time	td(off)			15.1		
Turn-off fall time	tf			2.7		

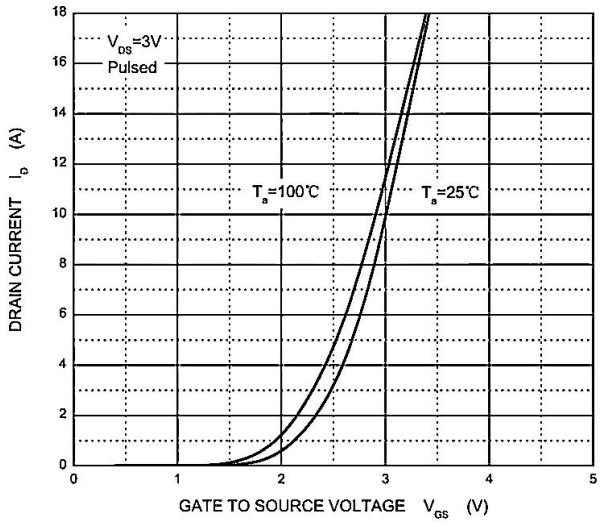
Notes: 1. Pulse Test : Pulse Width ≤ 300μs, Duty Cycle ≤ 0.5 %.
2. These parameters have no way to verify.

■ TYPICAL CHARACTERISTICS

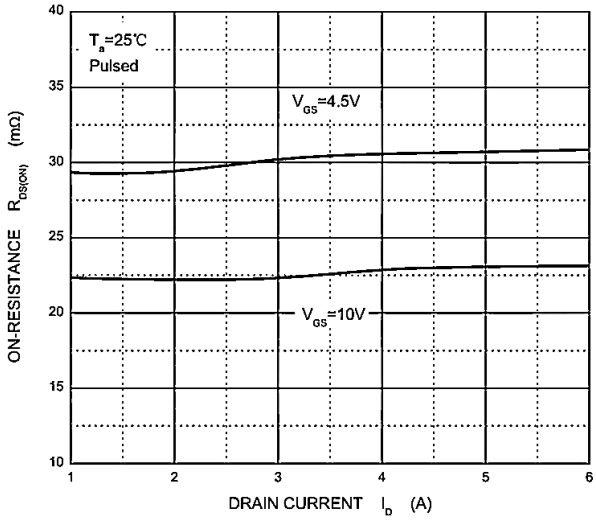
Output Characteristics



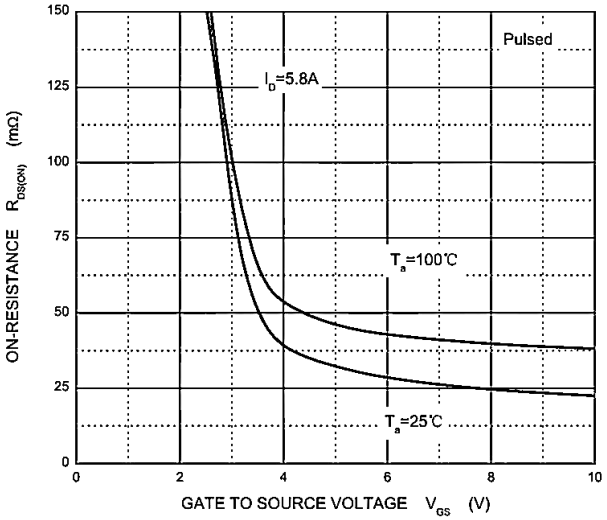
Transfer Characteristics



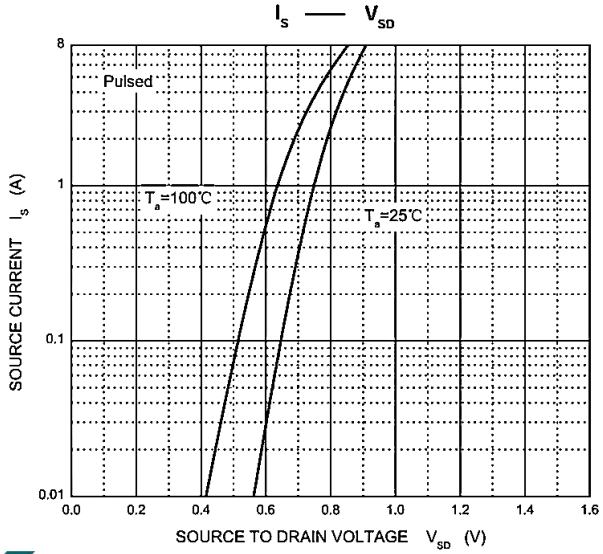
$R_{DS(ON)}$ —— I_D



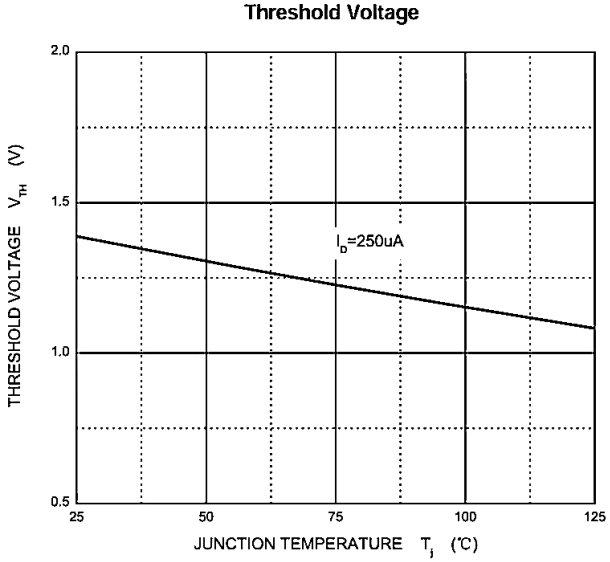
$R_{DS(ON)}$ —— V_{GS}



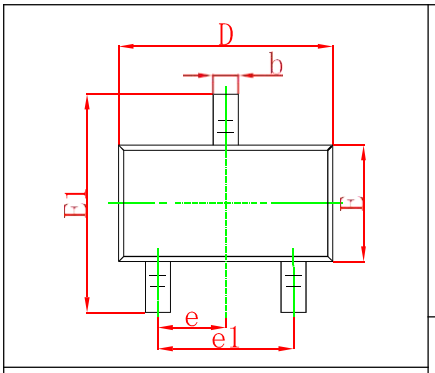
I_S —— V_{SD}

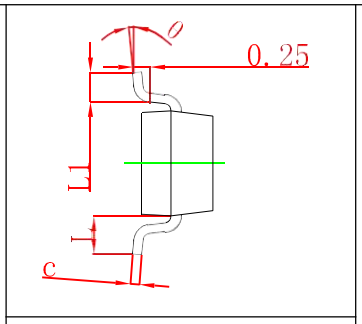


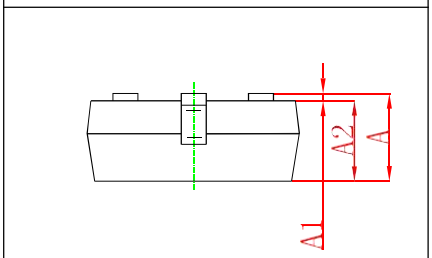
Threshold Voltage

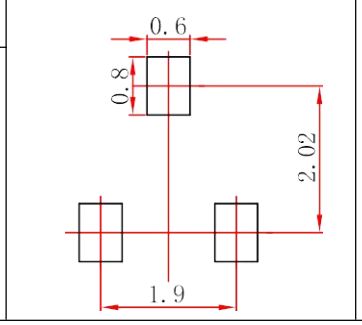


■ SOT23 PACKAGE OUTLINE DIMENSIONS









Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	0.900	1.150	0.035	0.045
A1	0.000	0.100	0.000	0.004
A2	0.900	1.050	0.035	0.041
b	0.300	0.500	0.012	0.020
c	0.080	0.150	0.003	0.006
D	2.800	3.000	0.110	0.118
E	1.200	1.400	0.047	0.055
E1	2.250	2.550	0.089	0.100
e	0.950 TYP		0.037 TYP	
e1	1.800	2.000	0.071	0.079
L	0.550 REF		0.022 REF	
L1	0.300	0.500	0.012	0.020
θ	0°	8°	0°	8°

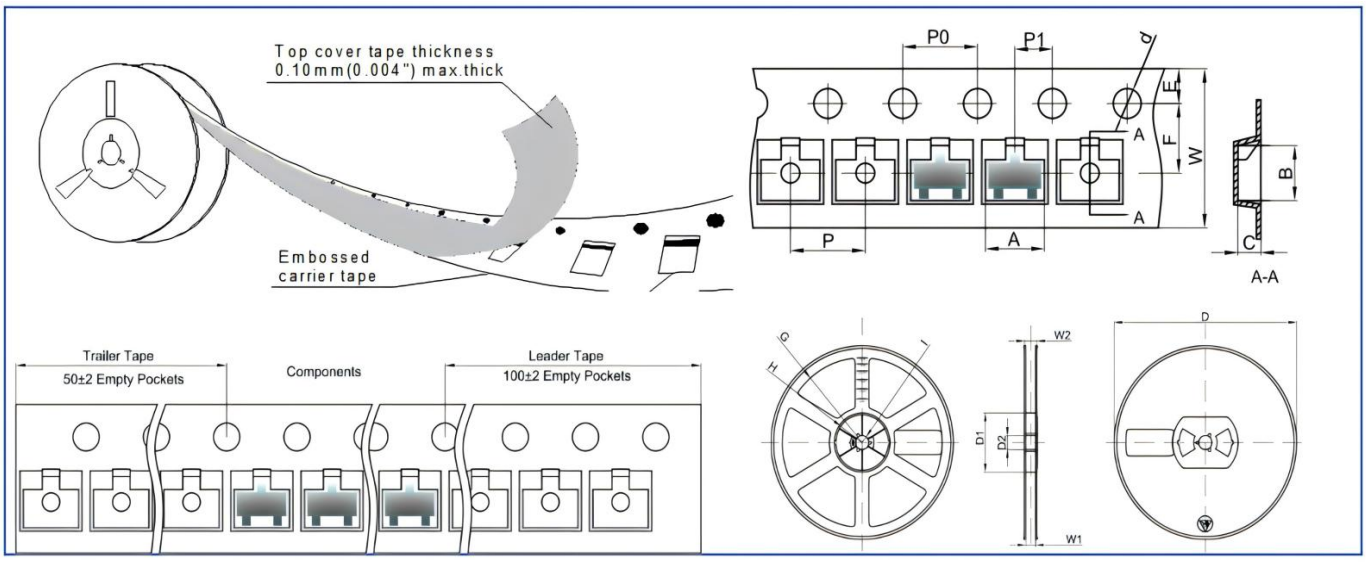
Note:

1.Controlling dimension:in millimeters.

2.General tolerance:±0.05mm.

3.The pad layout is for reference purposes only.

■ 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 Optiom	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	