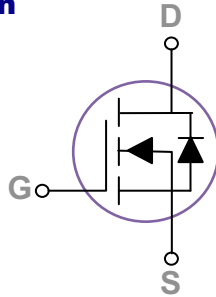
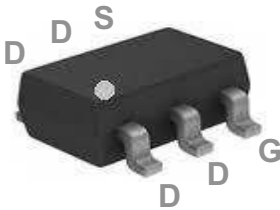


150V N-Channel MOSFETs

General Description

These N-Channel enhancement mode power field effect transistors are using trench DMOS technology. This advanced technology has been especially tailored to minimize on-state resistance, provide superior switching performance, and withstand high energy pulse in the avalanche and commutation mode. These devices are well suited for high efficiency fast switching applications.

SOT23-6 Pin Configuration



BVDSS	R _{DS(ON)}	I _D
150V	480mΩ	1.4A

Features

- 150V, 1.4A, R_{DS(ON)} = 480mΩ @ V_{GS} = 10V
- Improved dv/dt capability
- Fast switching
- 100% EAS Guaranteed

Applications

- Networking
- Load Switch
- LED applications

Absolute Maximum Ratings $T_c=25^\circ\text{C}$ unless otherwise noted

Symbol	Parameter	Rating	Units
V _{DS}	Drain-Source Voltage	150	V
V _{GS}	Gate-Source Voltage	±20	V
I _D	Drain Current – Continuous (T _C =25°C)	1.4	A
	Drain Current – Continuous (T _C =100°C)	0.88	A
I _{DM}	Drain Current – Pulsed ¹	5.6	A
P _D	Power Dissipation (T _C =25°C)	1.56	W
	Power Dissipation – Derate above 25°C	0.012	W/°C
T _{STG}	Storage Temperature Range	-50 to 150	°C
T _J	Operating Junction Temperature Range	-50 to 150	°C

Thermal Characteristics

Symbol	Parameter	Typ.	Max.	Unit
R _{θJA}	Thermal Resistance Junction to ambient	---	80	°C/W

Electrical Characteristics (T_J=25 °C, unless otherwise noted)

Off Characteristics

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
BV _{DSS}	Drain-Source Breakdown Voltage	V _{GS} =0V , I _D =250uA	150	---	---	V
I _{DSS}	Drain-Source Leakage Current	V _{DS} =150V , V _{GS} =0V , T _J =25°C	---	---	1	uA
		V _{DS} =120V , V _{GS} =0V , T _J =125°C	---	---	10	uA
I _{GSS}	Gate-Source Leakage Current	V _{GS} =±20V , V _{DS} =0V	---	---	±100	nA

On Characteristics

R _{DS(ON)}	Static Drain-Source On-Resistance	V _{GS} =10V , I _D =1A	---	380	480	mΩ
		V _{GS} =6V , I _D =0.5A	---	410	520	mΩ
V _{GS(th)}	Gate Threshold Voltage	V _{GS} =V _{DS} , I _D =250uA	2	3	4	V
g _{fs}	Forward Transconductance	V _{DS} =10V , I _D =1A	---	1.7	---	S

Dynamic and switching Characteristics

Q _g	Total Gate Charge ^{2,3}	V _{DS} =75V , V _{GS} =10V , I _D =1A	---	8.1	16	nC
Q _{gs}	Gate-Source Charge ^{2,3}		---	2	4	
Q _{gd}	Gate-Drain Charge ^{2,3}		---	2.7	5.4	
T _{d(on)}	Turn-On Delay Time ^{2,3}	V _{DD} =75V , V _{GS} =10V , R _G =10Ω I _D =1A	---	8.2	16	ns
T _r	Rise Time ^{2,3}		---	5.8	12	
T _{d(off)}	Turn-Off Delay Time ^{2,3}		---	14.8	28	
T _f	Fall Time ^{2,3}		---	8	16	
C _{iss}	Input Capacitance	V _{DS} =25V , V _{GS} =0V , F=1MHz	---	350	700	pF
C _{oss}	Output Capacitance		---	34	68	
C _{rss}	Reverse Transfer Capacitance		---	26	52	
R _g	Gate resistance	V _{GS} =0V , V _{DS} =0V , F=1MHz	---	2	4	Ω

Drain-Source Diode Characteristics and Maximum Ratings

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
I _S	Continuous Source Current	V _G =V _D =0V , Force Current	---	---	1.4	A
I _{SM}	Pulsed Source Current		---	---	2.8	A
V _{SD}	Diode Forward Voltage	V _{GS} =0V , I _S =1A , T _J =25°C	---	---	1	V
t _{rr}	Reverse Recovery Time	V _{GS} =0V , I _S =1A , di/dt=100A/μs	---	43	---	ns
Q _{rr}	Reverse Recovery Charge	T _J =25°C	---	37	---	nC

Note :

1. Repetitive Rating : Pulsed width limited by maximum junction temperature.
2. The data tested by pulsed , pulse width ≤ 300us , duty cycle ≤ 2%.
3. Essentially independent of operating temperature.

RATING AND CHARACTERISTICS CURVES (RM1A4N150S6)

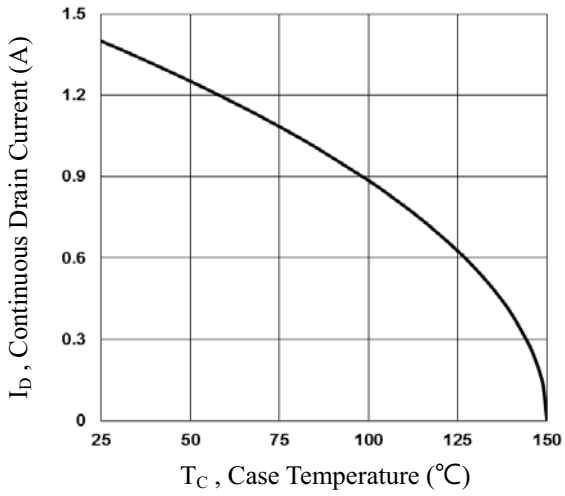


Fig.1 Continuous Drain Current vs. T_C

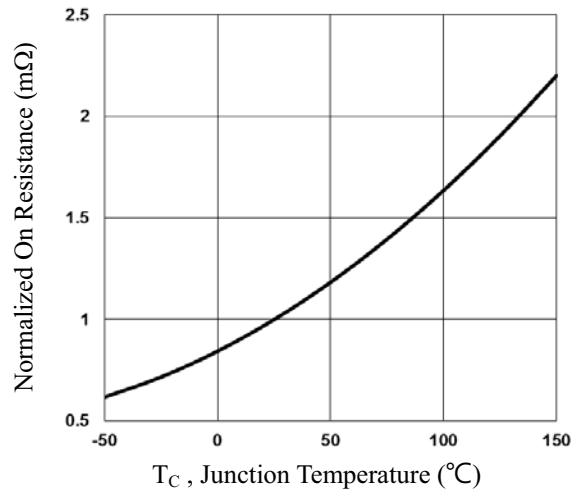


Fig.2 Continuous Drain Current vs. T_C

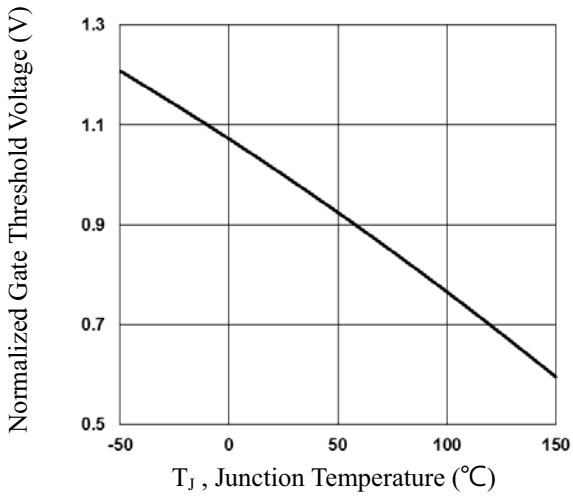


Fig.3 Normalized V_{th} vs. T_J

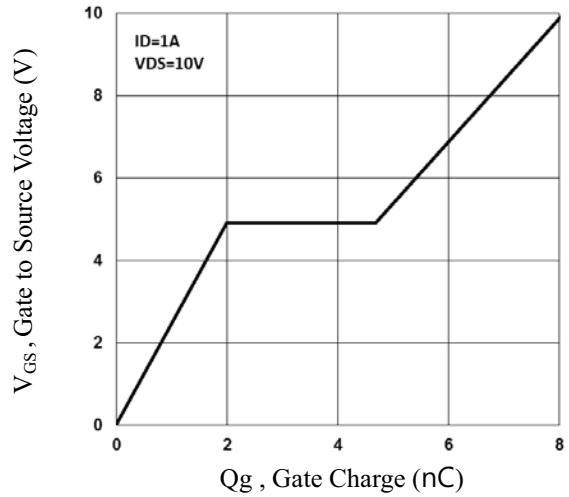


Fig.4 Gate Charge Waveform

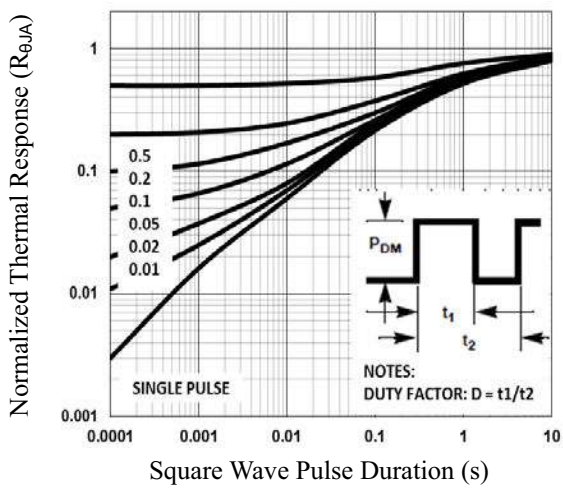


Fig.5 Normalized Transient Impedance

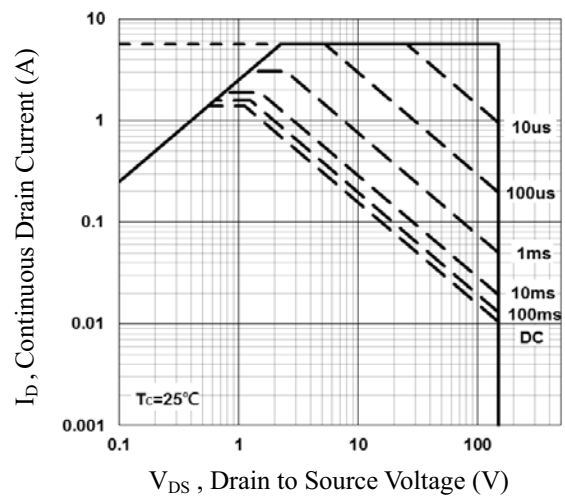


Fig.6 Maximum Safe Operation Area

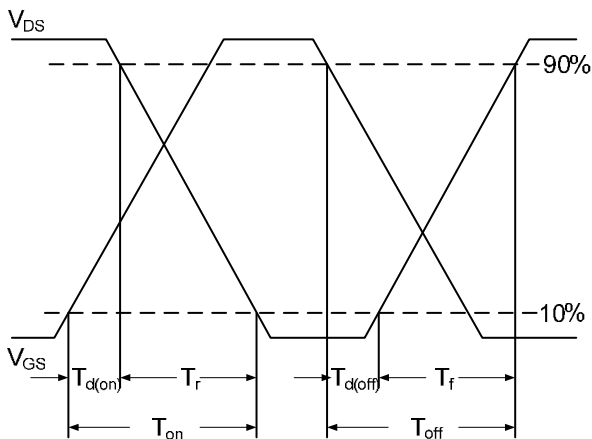


Fig.7 Switching Time Waveform

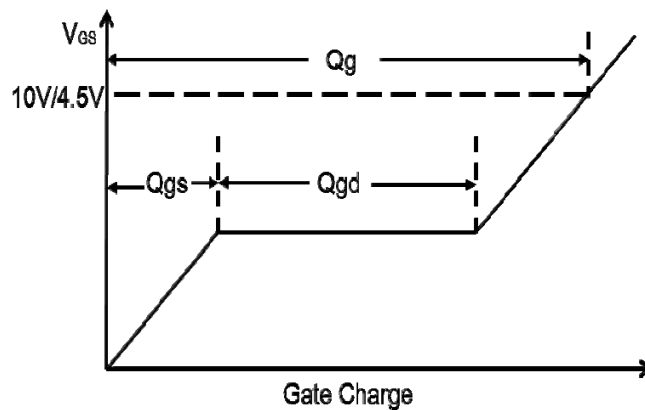


Fig.8 Gate Charge Waveform



RECTRON

Marking on the body



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1A4N150

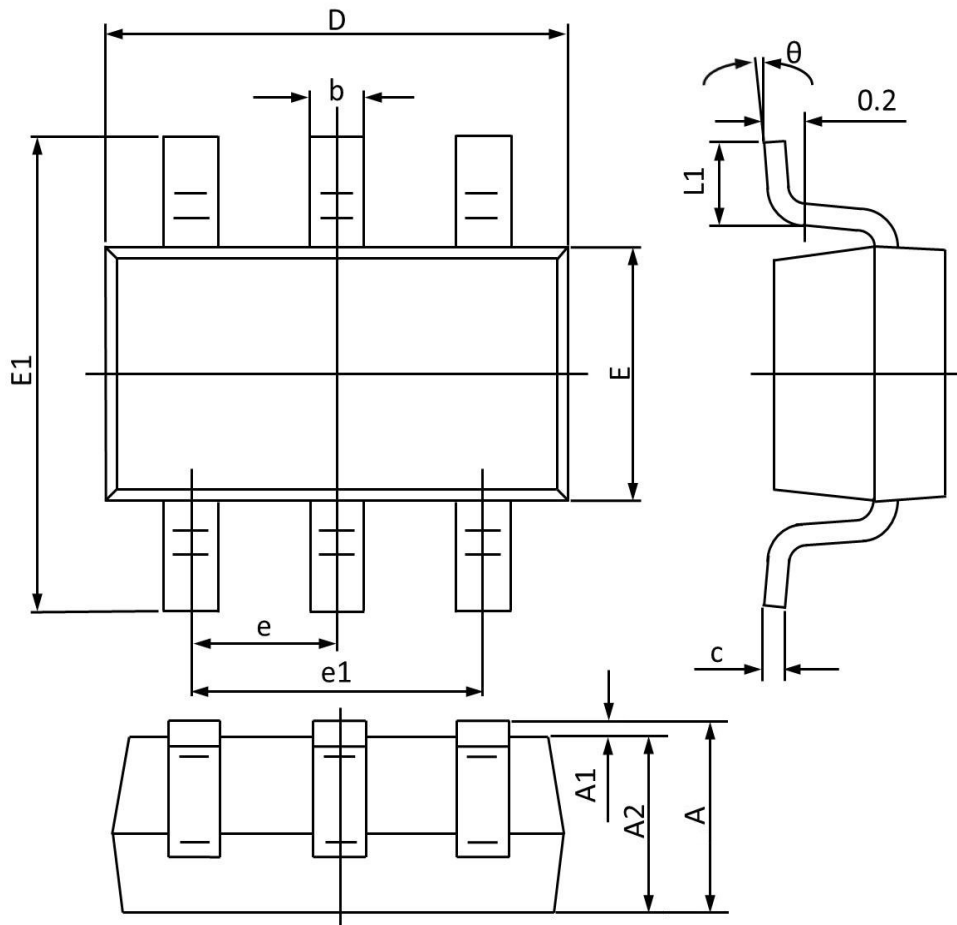
← Part No.

Y Y W W

Year – Code
(Y:17-----2017
18-----2018.....)

Week – code
(WW:01~52)

SOT23-6 PACKAGE INFORMATION



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	MAX	MIN	MAX	MIN
A	1.450	-	0.057	-
A1	0.100	0.000	0.004	0.000
A2	1.300	1.050	0.051	0.041
b	0.500	0.300	0.020	0.012
c	0.200	0.100	0.008	0.004
D	3.100	2.700	0.122	0.106
E	1.800	1.400	0.071	0.055
E1	3.000	2.600	0.118	0.102
e	0.95BSC		0.037BSC	
e1	2.000	1.800	0.079	0.071
L1	0.600	0.300	0.024	0.012
θ	10°	0°	10°	0°

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