

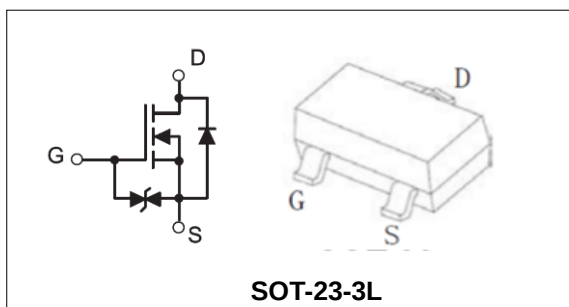
**20V/6A N-Channel Enhancement Mode MOSFET****Features**

- High power and current handling capability
- Lead free product is acquired
- Surface mount package
- ESD Rating: 2000V HBM

BVDSS	20	V
ID	6	A
RDSON@VGS=4.5V	13	mΩ
RDSON@VGS=2.5V	16	mΩ

Applications

- Low Switch
- PWM application

**Order Information**

Product	Package	Marking	Reel Size	Reel	Carton
PT3416	SOT-23-3L	AG6A	7inch	3000PCS	180000PCS

Absolute Maximum Ratings

Symbol	Parameter		Rating	Unit
Common Ratings (TC=25°C Unless Otherwise Noted)				
V _{(BR)DSS}	Drain-Source Breakdown Voltage		20	V
V _{GS}	Gate-Source Voltage		±12	V
T _J	Maximum Junction Temperature		150	°C
T _{STG}	Storage Temperature Range		-55 to 150	°C
I _S	Diode Continuous Forward Current	TA =25°C	6	A
Mounted on Large Heat Sink				
I _{DM}	Pulse Drain Current Tested (Note1)	TA =25°C	30	A
I _D	Continuous Drain current	TA =25°C	6	A
P _D	Maximum Power Dissipation	TA =25°C	1.4	W
R _{θJA}	Thermal Resistance Junction-to-Ambient (Note2)		89.3	°C/W



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Symbol	Parameter	Condition	Min.	Typ.	Max.	Unit
Static Electrical Characteristics @ TJ = 25°C (unless otherwise stated)						
V _{(BR)DSS}	Drain- Source Breakdown Voltage	VGS=0V ID=250μA	20	--	--	V
I _{DSS}	Zero Gate Voltage Drain current	VDS=20V,VGS=0V	--	--	1	μA
I _{GSS}	Gate-Body Leakage Current	VGS=±10V,VDS=0V	--	--	±10	uA
V _{GS(TH)}	Gate Threshold Voltage	VDS=VGS,ID=250μA	0.45	0.7	1	V
R _{DS(ON)}	Drain-Source On-State Resistance (Note3)	VGS=4.5V, ID=6A	--	13	22	mΩ
		VGS=2.5V, ID=5A	--	16	26	mΩ
Dynamic Electrical Characteristics @ TJ = 25°C (unless otherwise stated) (Note4)						
C _{iss}	Input Capacitance	VDS= 10V, VGS=0V, F=1MHz	--	466	--	pF
C _{oss}	Output Capacitance		--	125	--	pF
C _{rss}	Reverse Transfer Capacitance		--	84	--	pF
Q _g	Total Gate Charge	VDS= 10V, ID= 6A, VGS= 4.5V	--	5.3	--	nC
Q _{gs}	Gate-Source Charge		--	0.9	--	nC
Q _{gd}	Gate-Drain Charge		--	1.8	--	nC
Switching Characteristics (Note4)						
t _{d(on)}	Turn-on Delay Time	VDD=10V, ID= 6A, RG=3Ω, VGS=5V	--	2.7	--	nS
t _r	Turn-on Rise Time		--	6.7	--	nS
t _{d(off)}	Turn-off Delay Time		--	18	--	nS
t _f	Turn-off Fall Time		--	5.3	--	nS
Source- Drain Diode Characteristics@ TJ = 25°C (unless otherwise stated)						
V _{SD}	Forward on voltage (Note3)	IS=1A,VGS=0V	--	--	1.2	V

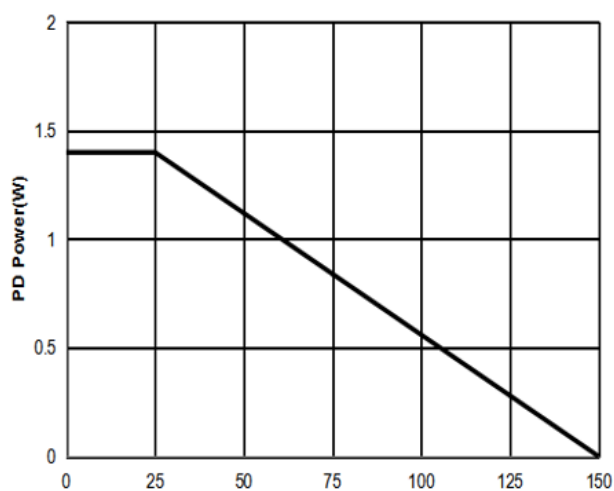
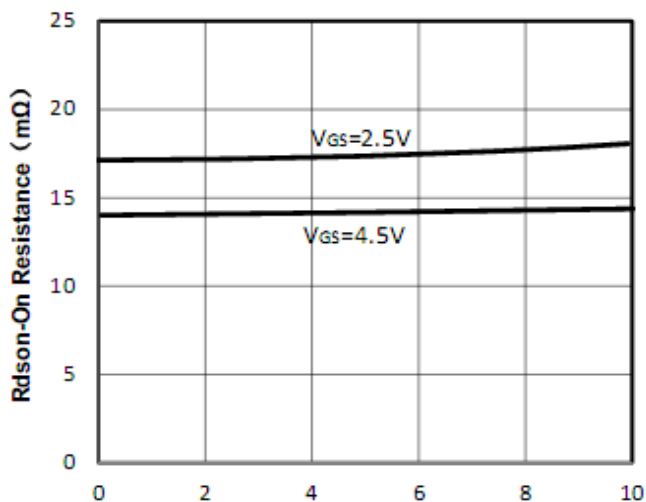
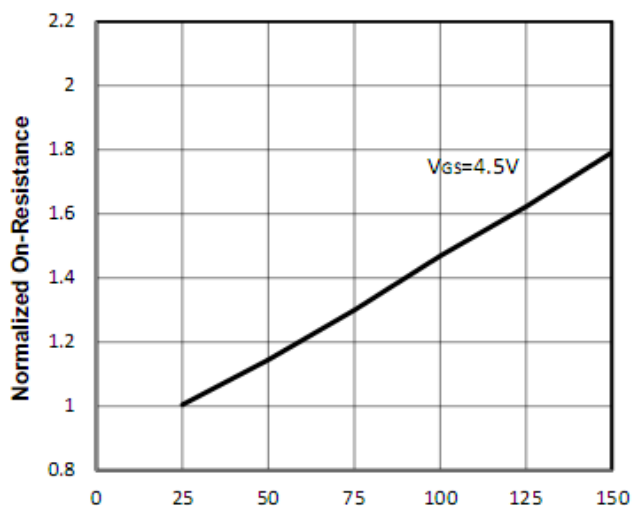
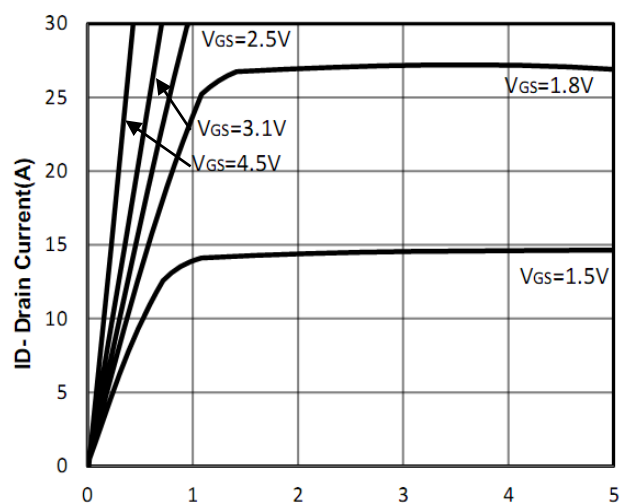
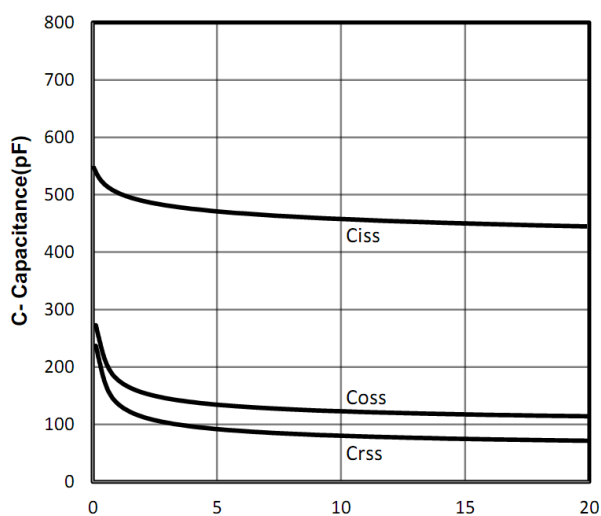
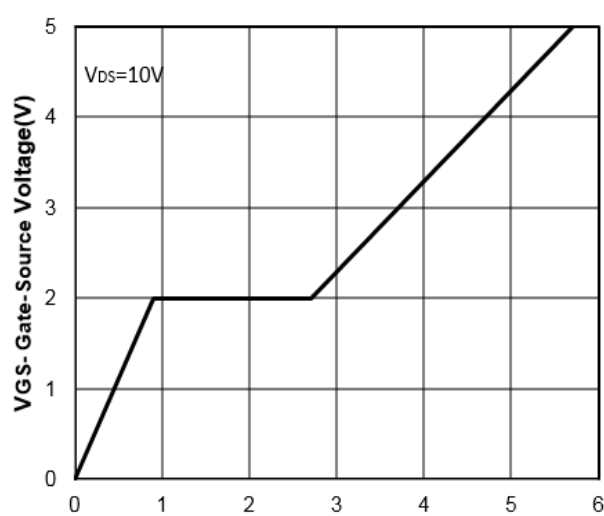
Note:

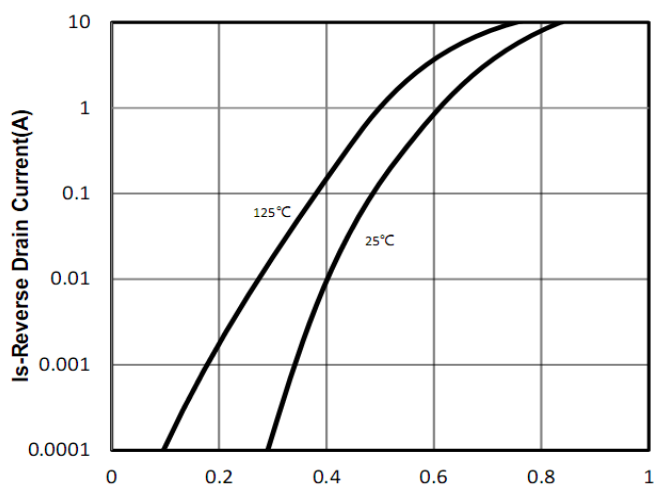
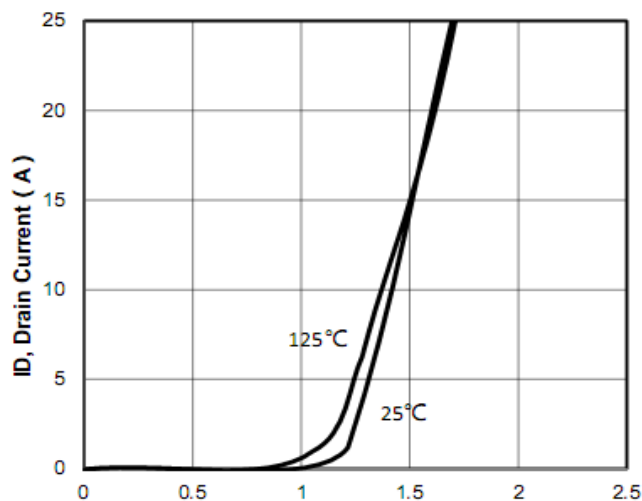
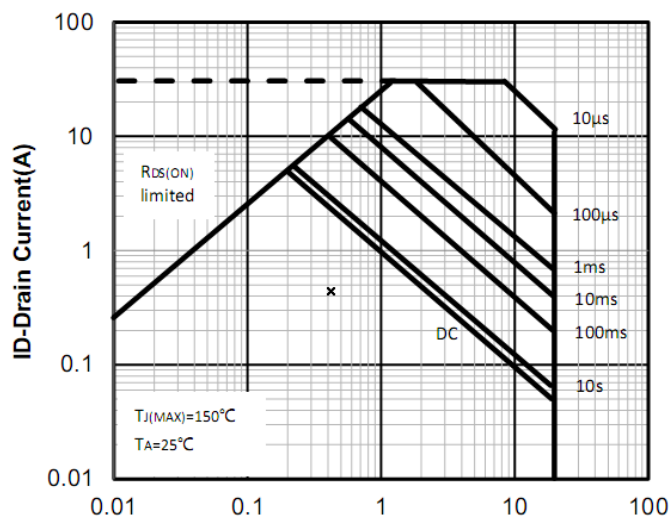
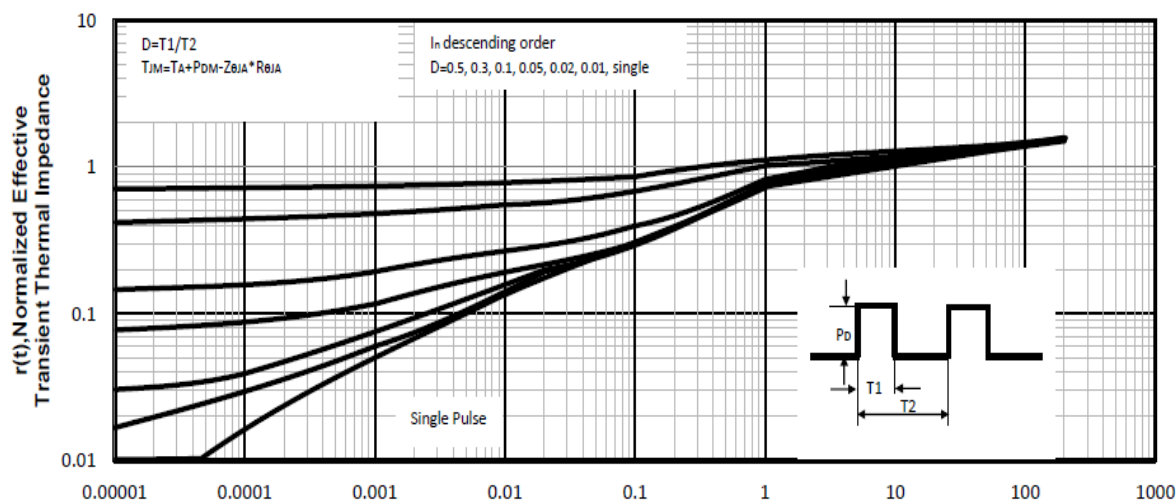
1. Repetitive Rating: Pulse width limited by maximum junction temperature.
2. Surface Mounted on FR4 Board, t ≤ 10 sec
3. Pulse Test: pulse width ≤ 300 us, duty cycle ≤ 2%.
4. Guaranteed by design, not subject to production testing.

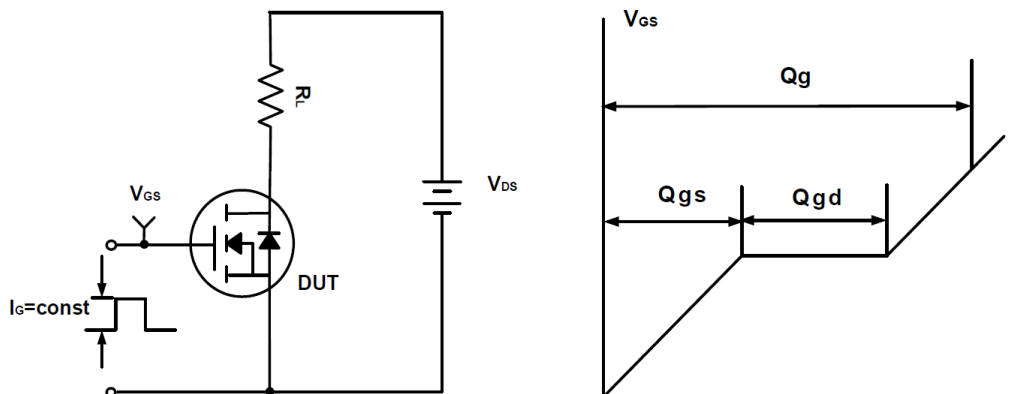
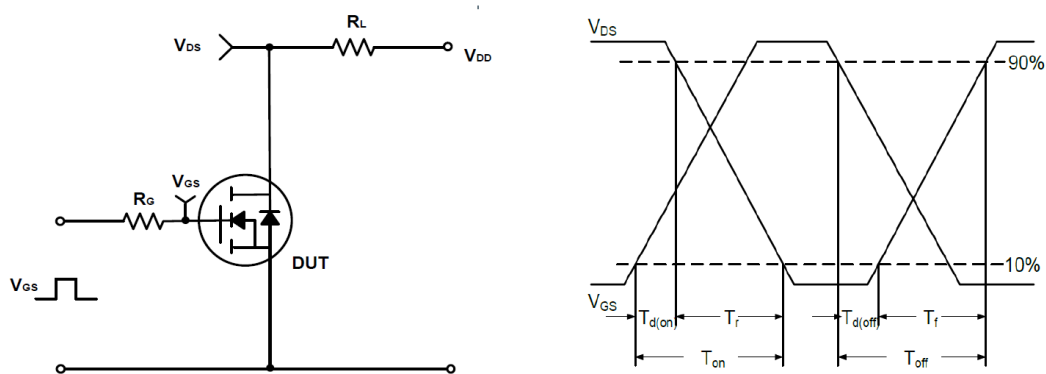


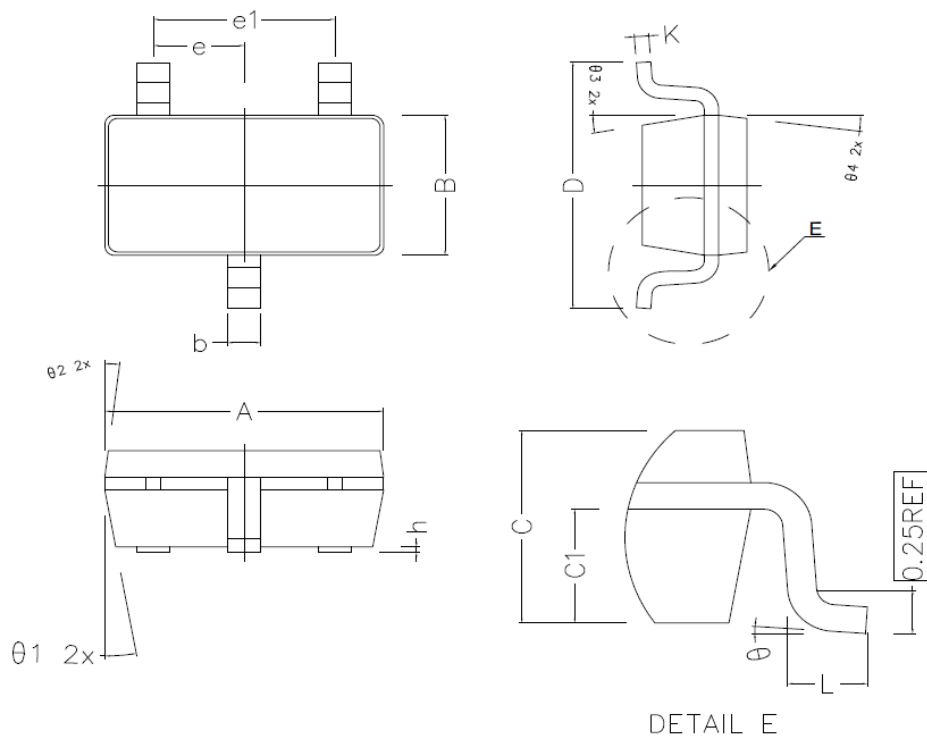
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Typical Characteristics

Figure1: T_j Junction Temperature (°C)Figure2: I_d Drain Current (A)Figure3: T_j Junction Temperature (°C)Figure4: V_{ds} Drain-Source Voltage (V)Figure5: V_{ds} Drain-Source Voltage (V)Figure6: Q_g Gate Charge (nC)


Figure7: Vsd Source-Drain Voltage (V)

Figure8: Vgs Gate-Source Voltage (V)

Figure9: Vds Drain -Source Voltage (V)

Figure10: Square Wave Pulse Duration (sec)

Test Circuit and Waveform:

Figure A Gate Charge Test Circuit & Waveforms

Figure B Switching Test Circuit & Waveforms

**SOT-23-3L Package Outline Dimensions (Units: mm)**

COMMON DIMENSIONS (UNITS OF MEASURE IS mm)			
	MIN	NORMAL	MAX
A	2.820	2.920	3.020
B	1.500	1.600	1.700
C	1.050	1.100	1.150
C1	0.600	0.650	0.700
D	2.650	2.800	2.950
L	0.300	0.450	0.600
b	0.280	0.350	0.420
h	0.020	0.050	0.100
K	0.120	—	0.230
e	0.950TYPE		
e1	1.900TYPE		
θ ₁	10° TYPE		
θ ₂	7° TYPE		
θ ₃	10° TYPE		
θ ₄	7° TYPE		
θ	0° ~ 8°		