Typical Characteristics[Note1]

Parameters	N-MOS	P-MOS	Unit
BV_{DSS_min}	40	-40	*V*
R_{DSON_max} $@V_{GS} = 10V$	22	40	*mohm*
R_{DSON_max} $@V_{GS} = 4.5V$	28	50	*mohm*
I_D	8	-6	*A*

Packaging Information

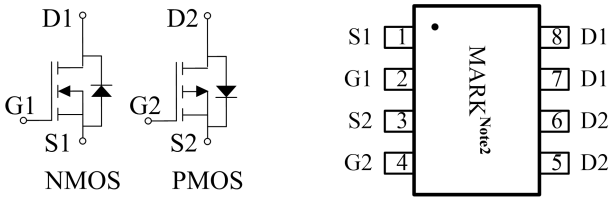


Fig. 1 Pin configuration

Ordering Information

Part No.	YT0406AKS8
Material	ROHS
Package	SOP8
Packing Method	Tape 4000 pcs/Reel

Pin Configuration

Pin No.	Name	Description
1	S1	NMOS Source
2	G1	NMOS Gate
3	S2	PMOS Source
4	G2	PMOS Gate
5, 6	D2	NMOS Drain
7, 8	D1	PMOS Drain

Note1: Unless otherwise specified, T_a = 25 ℃

Note 2: Please refer to the "Marking Rule".

Application

H-Bridge
BLDC Driving
Inverters

Address: Room 1501, Block A3, West Jianzhu Rd. 777, Binhu District, Wuxi, Jiangsu , China
Phone/Fax: 86-510-85388846

Absolute Maximum Ratings[Note3]

Parameters	Symbol	NMOS	PMOS	Units
Drain-Source Voltage	V_{DSS}	40	-40	*V*
Continuous Drain Current[Note3]	I_D	8	-6	*A*
Maximum Pulsed Drain Current[Note3]	I_{DM}	40	-30	*A*
Gate-Source Voltage	V_{GSS}	±20	±20	*V*
Junction to ambient thermal resistance	θ_{thja}	75		℃/*W*
Operating junction temperature range	T_j	-55 ~ 150		℃
Storage Temperature Range	T_{stg}	-55 ~ 150		℃
Welding temperature (< 20 *s* welding)	T_{lead}	260		℃

Note3: Limited by the maximum junction temperature

NMOS Electrical Characteristics[Note1, 4]

Parameter	Symbol	Conditions	Min	Typ.	Max	Units
Statics						
Drain-Source Breakdown Voltage	BV_{DSS}	V_{GS} = 0 V, I_{DS} = 250 μA	40	45		V
Drain-Source On-Resistance	R_{DS_ON}	V_{GS} = 10 V, I_{DS} = 6 A		18	22	$mohm$
		V_{GS} = 4.5 V, I_{DS} = 5 A		24	28	
Drain-Source Leakage Current	I_{DSS}	V_{GS} = 0 V, V_{DS} = 40 V			1	μA
Gate-Source Threshold Voltage	V_{GS_TH}	V_{GS} = V_{DS}, I_{DS} = 250 μA	1	1.5	2	V
Gate-Source Leakage	I_{GSS}	V_{GS} = ±20 V			±100	nA
Dynamics						
Forward Trans-conductance	G_{FS}	V_{DS} = 5 V, I_{DS} = 6 A	15			S
Input Capacitance	C_{ISS}			516		pF
Output Capacitance	C_{OSS}	V_{GS} = 0 V, V_{DS} = 20 V, F_{SW} = 1 MHz		82		pF
Reverse Transfer Capacitance	C_{RSS}			43		pF
Total Gate Charge	Q_G			8.9		nC
Gate-Source Charge	Q_{GS}	V_{GS} = 10 V, V_{DS} = 20 V, I_{DS} = 6 A		2.4		nC
Gate-Drain Charge	Q_{GD}			1.4		nC
Turn-on Delay Time	T_{D_ON}			4.5		ns
Turn-on Rise Time	T_R	R_G = 3 ohm, V_{DS} = 20 V, I_{DS} = 6 A		2.5		ns
Turn-off Delay Time	T_{D_OFF}			14.5		ns
Turn-off Fall Time	T_F			3.5		ns
Body Diode						
Body Diode Voltage	V_{SD}	V_{GS} = 0 V, I_{SD} = 6 A		0.8	1.2	V

Note4： The maximum and minimum parameters specified are guaranteed by test, the typical value are guaranteed by design, characterization and statistical analysis.

PMOS Electrical Characteristics[Note1, 4]

Parameter	Symbol	Conditions	Min	Typ.	Max	Units
Statics						
Drain-Source Breakdown Voltage	BV_{DSS}	V_{GS} = 0 V, I_{DS} = -250 μA	-40	-45		V
Drain-Source On-Resistance	R_{DS_ON}	V_{GS} = -10 V, I_{DS} = -5 A		35	40	$mohm$
		V_{GS} = -4.5 V, I_{DS} = -4 A		45	50	
Drain-Source Leakage Current	I_{DSS}	V_{GS} = 0 V, V_{DS} = -40 V			-1	μA
Gate-Source Threshold Voltage	V_{GS_TH}	V_{GS} = V_{DS}, I_{DS} = -250 μA	-1	-1.5	-2	V
Gate-Source Leakage	I_{GSS}	V_{GS} = ±20 V			±100	nA
Dynamics						
Forward Trans-conductance	G_{FS}	V_{DS} = -5 V, I_{DS} = -5 A	10			S
Input Capacitance	C_{ISS}			940		pF
Output Capacitance	C_{OSS}	V_{GS} = 0 V, V_{DS} = -20 V, F_{SW} = 1 MHz		97		pF
Reverse Transfer Capacitance	C_{RSS}			72		pF
Total Gate Charge	Q_G			17		nC
Gate-Source Charge	Q_{GS}	V_{GS} = -10 V, V_{DS} = -20 V, I_{DS} = -5 A		3.4		nC
Gate-Drain Charge	Q_{GD}			3.2		nC
Turn-on Delay Time	T_{D_ON}			6.2		ns
Turn-on Rise Time	T_R	R_G = 3 ohm, V_{DS} = -20 V, I_{DS} = -5 A		8.4		ns
Turn-off Delay Time	T_{D_OFF}			44.8		ns
Turn-off Fall Time	T_F			16		ns
Body Diode						
Body Diode Voltage	V_{SD}	V_{GS} = 0 V, I_{SD} = -5 A		-0.9	-1.2	V

Note4： The maximum and minimum parameters specified are guaranteed by test, the typical value are guaranteed by design, characterization and statistical analysis.

NMOS Typical Characteristics[Note1]

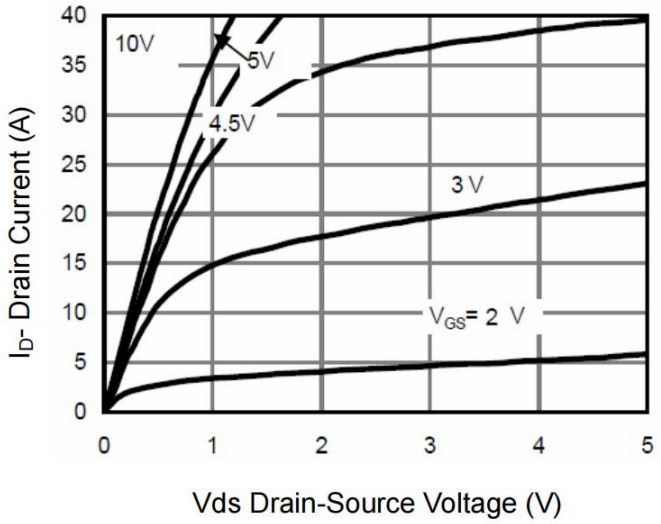


Fig. 2 Output Characteristics

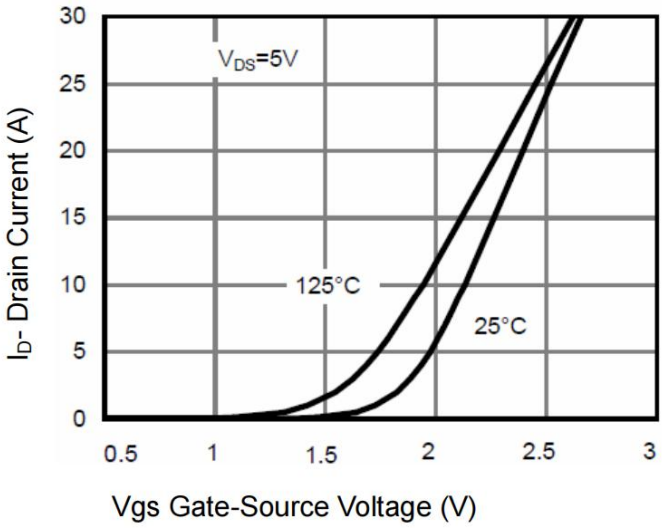


Fig. 3 Transfer Characteristics

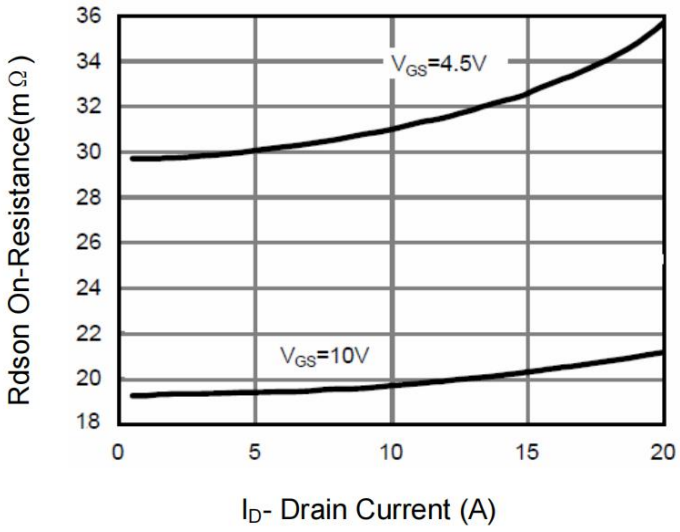


Fig. 4 Drain-Source On-Resistance

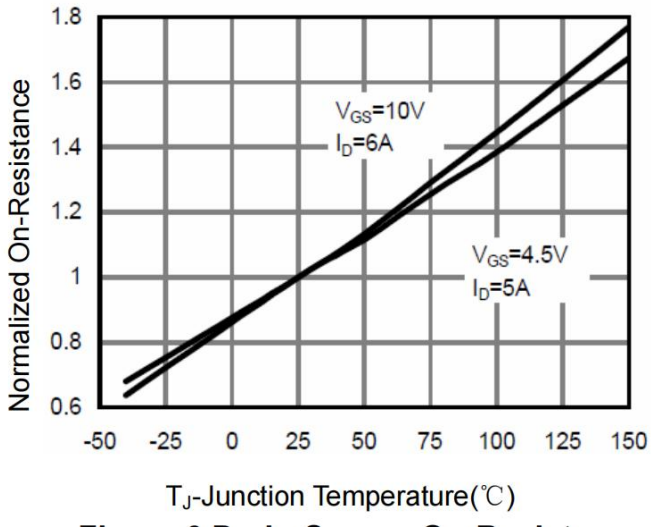


Fig. 5 Rdson vs Temperature

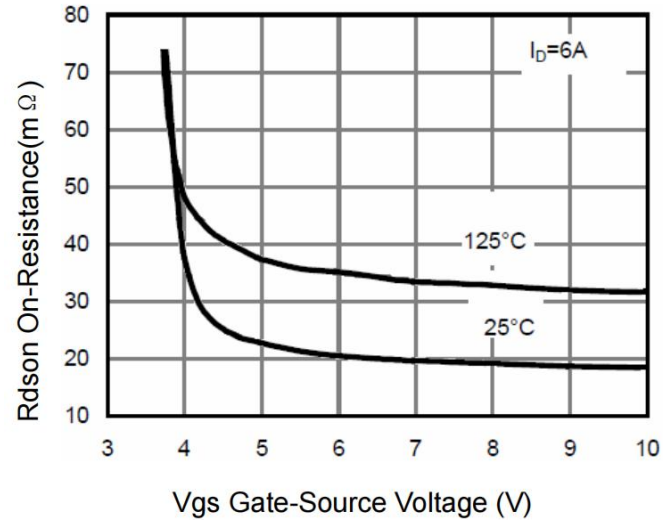


Fig. 6 Rdson vs Vgs

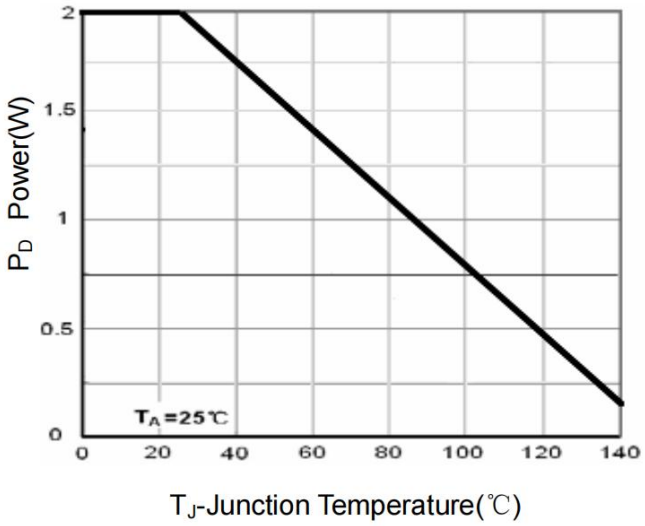


Fig. 7 Power Dissipation

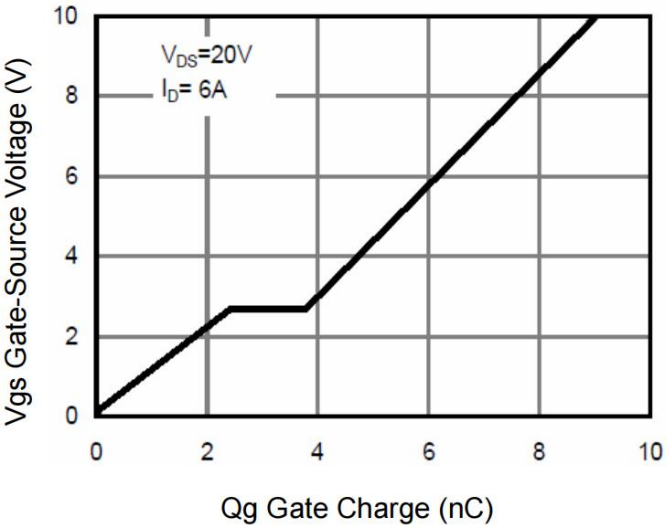


Fig. 8 Gate Charge

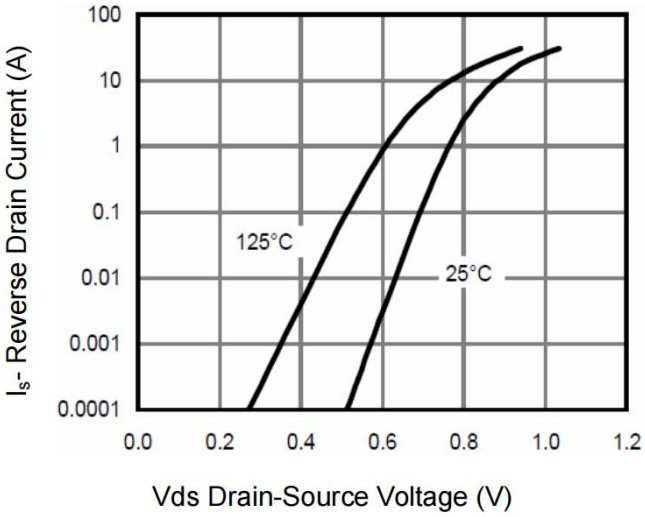


Fig. 9 Source- Drain Diode Forward

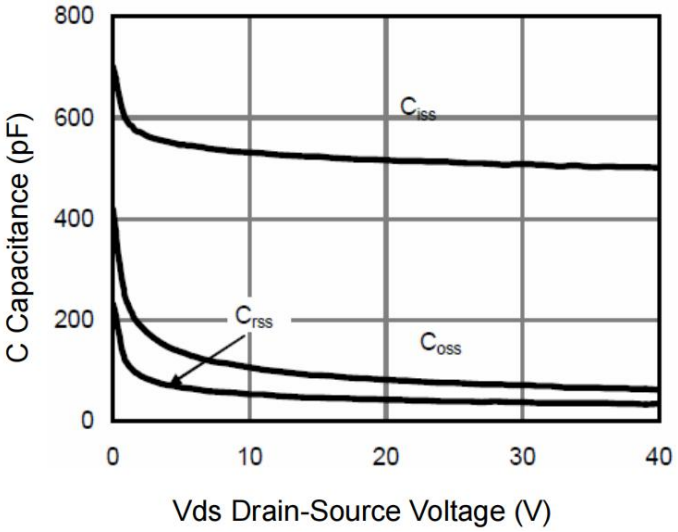


Fig. 10 Capacitance vs Vds

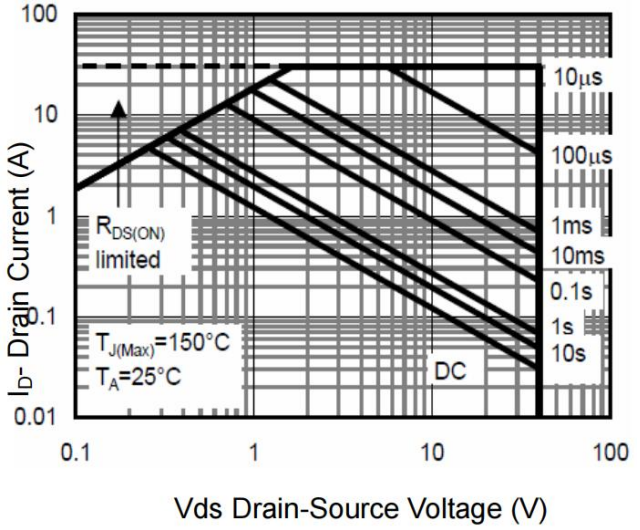


Fig. 11 Safe Operation Area

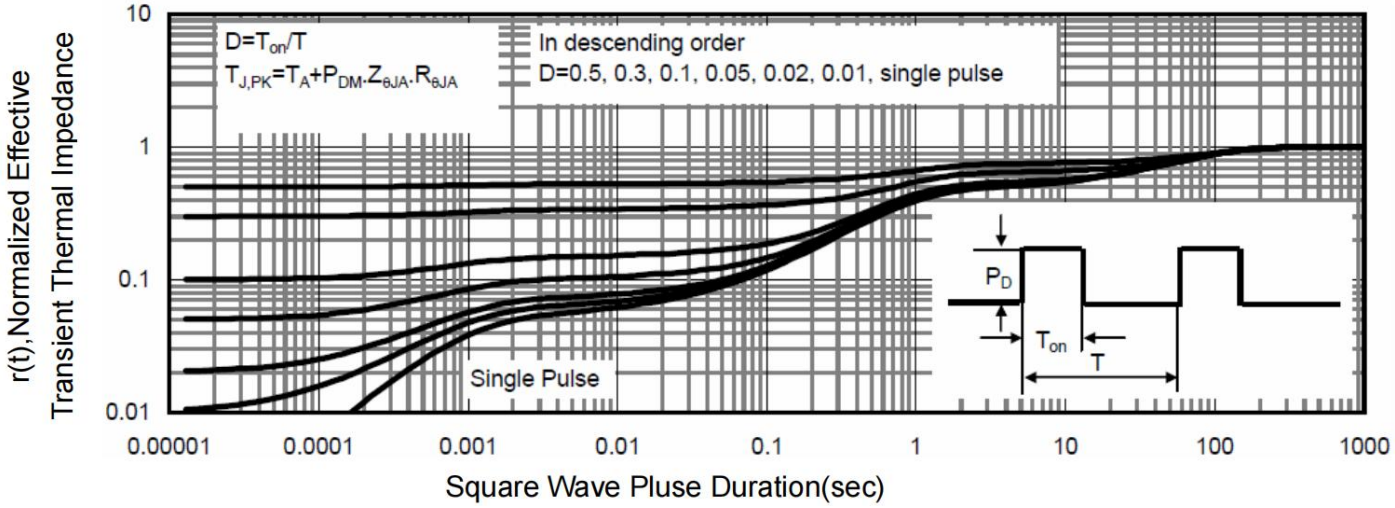


Fig. 12 Normalized Maximum Transient Thermal Impedance

PMOS Typical Characteristics[Note1]

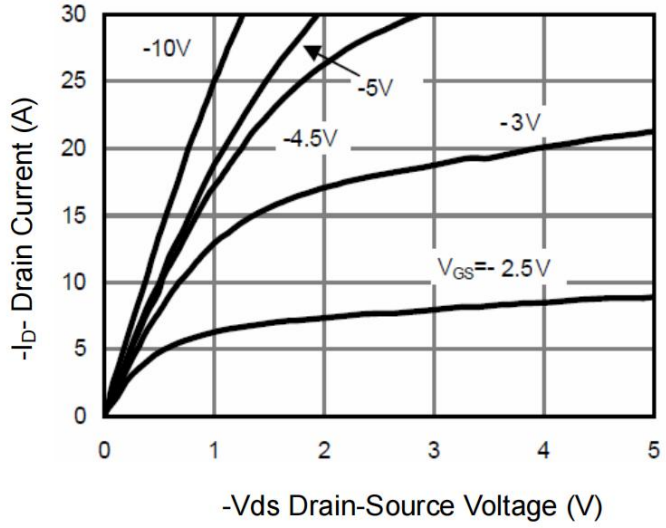


Fig. 13 Output Characteristics

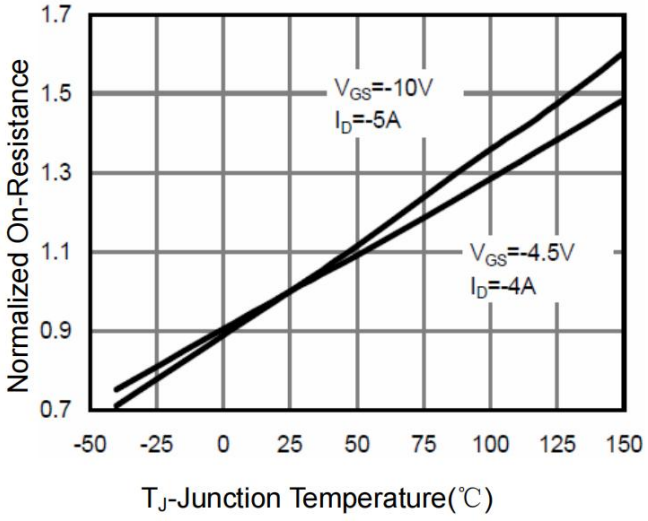


Fig. 14 Rdson vs Temperature

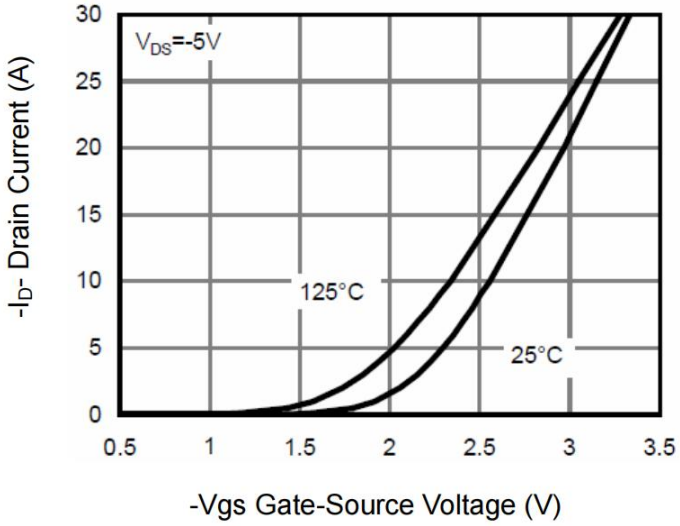


Fig. 15 Transfer Characteristics

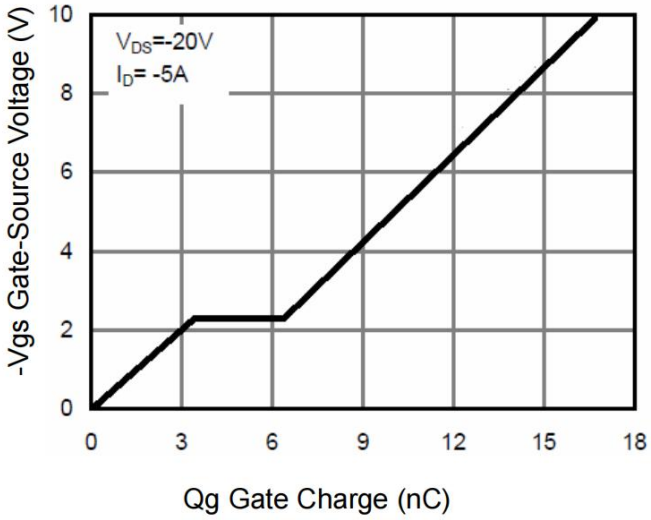


Fig. 16 Gate Charge

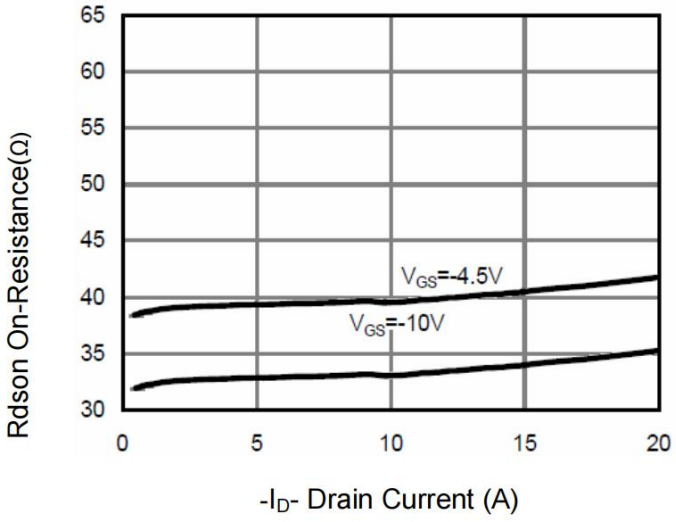


Fig. 17 Rdson- Drain Current

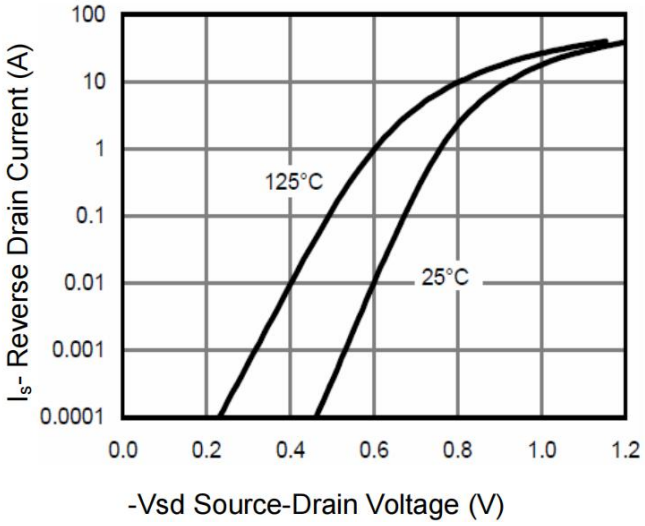


Fig. 18 Source- Drain Diode Forward

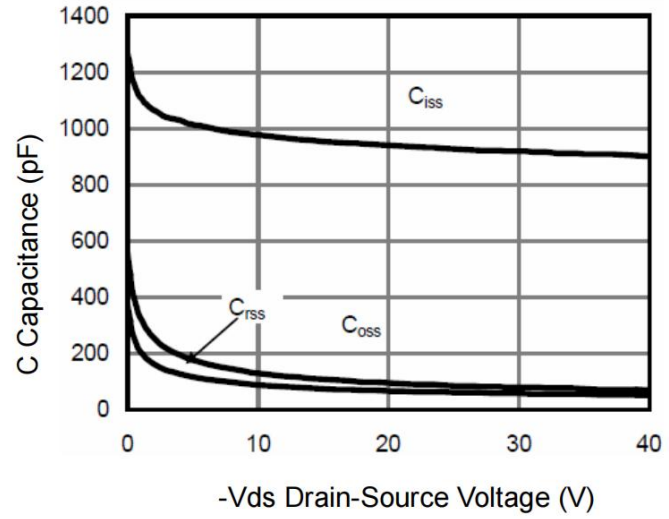


Fig. 19 Capacitance vs Vds

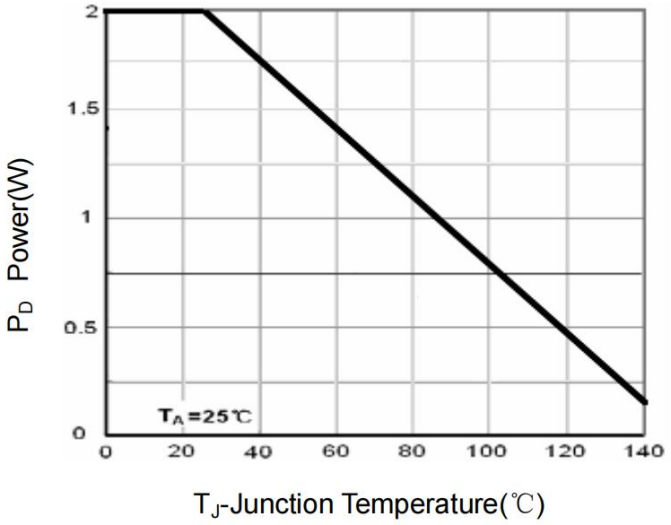


Fig. 20 Power Dissipation

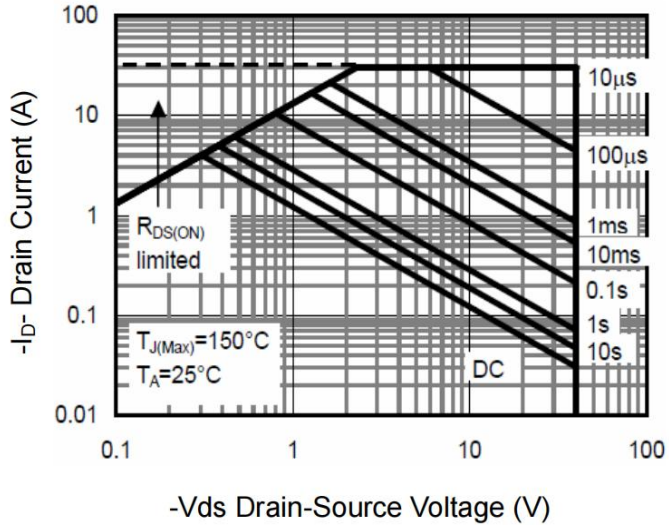


Fig. 21 Safe Operation Area

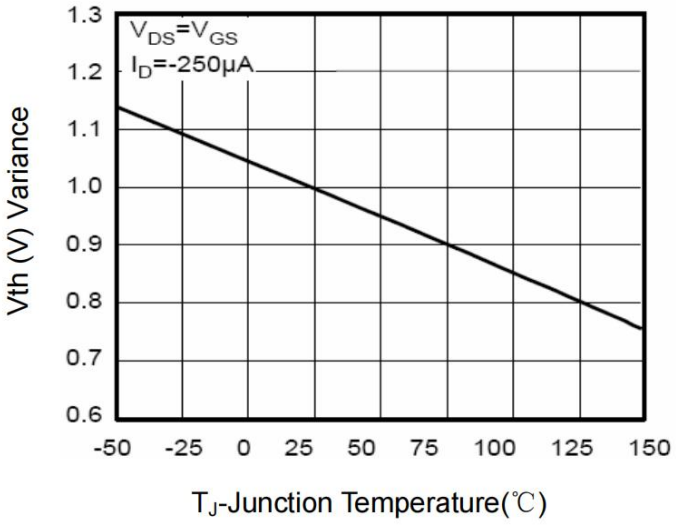


Fig. 22 VGS(th) vs Junction Temperature

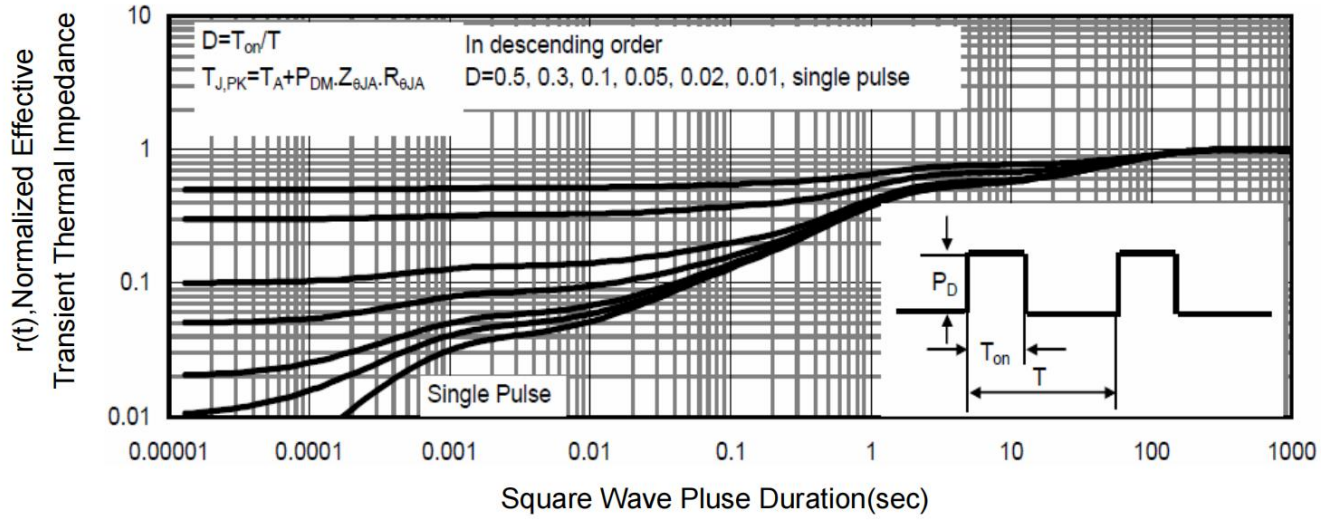
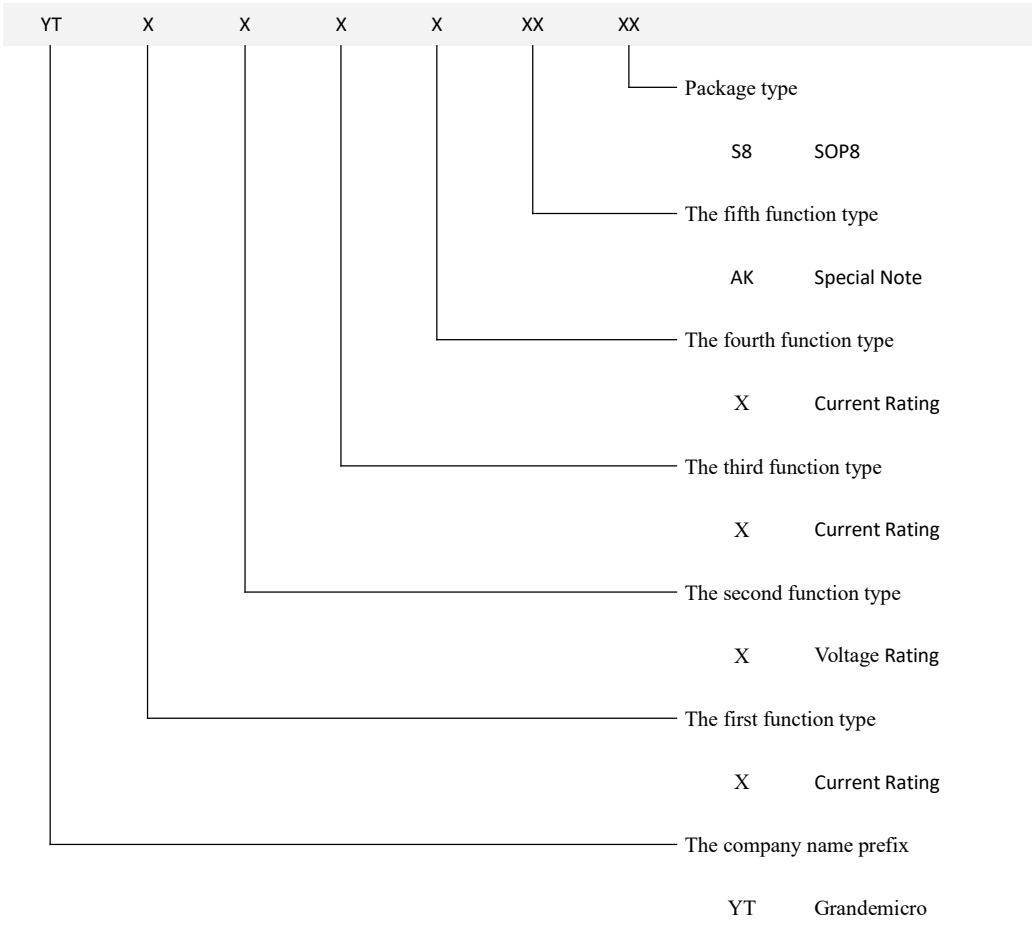


Fig. 23 Normalized Maximum Transient Thermal Impedance

Marking Rule

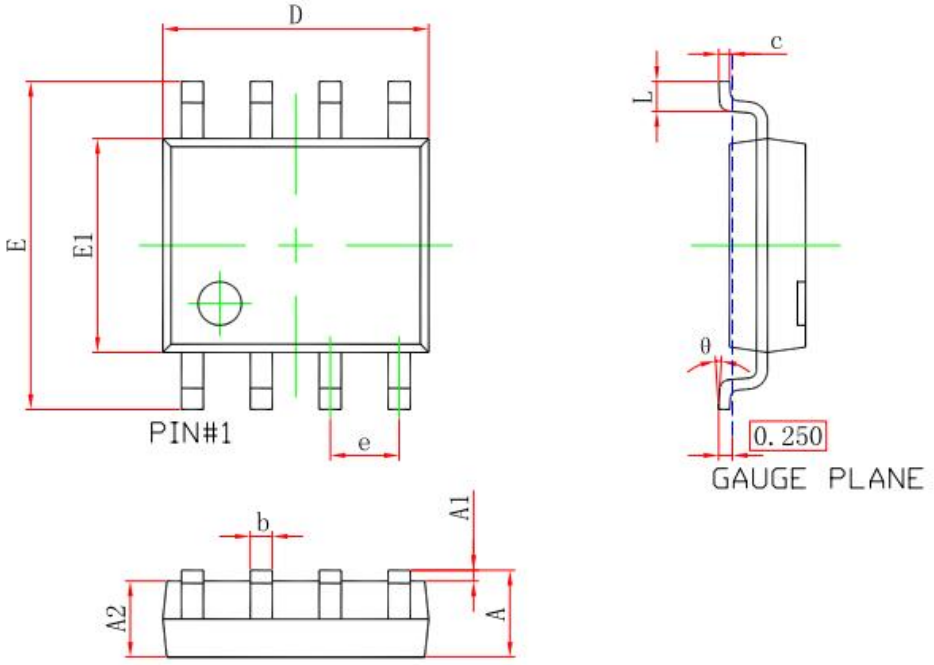


Naming Rule

Part No.							
●	P	Y	M	D	S	V	F
Part No.	YT0406AKS8						
●	The first pin marked						
Date code	P: Packing site; Y: Year; M: Month; D: Day; S: Series; V: Version; F: MOSFET.						

Package

SOP8



Symbol	Size (mm)		Size (inch)	
	Min.	Max.	Min.	Max.
A	1.350	1.750	0.053	0.069
A1	0.100	0.250	0.004	0.010
A2	1.350	1.500	0.053	0.061
b	0.330	0.510	0.013	0.020
c	0.170	0.250	0.007	0.010
D	4.800	5.000	0.189	0.197
e	1.270（BSC）		0.050（BSC）	
E	5.800	6.200	0.228	0.244
E1	3.800	4.000	0.150	0.157
L	0.400	1.270	0.016	0.031
θ	0°	8°	0°	8°

Version History

Version	Date	Description
A0	Dec. 2022	Draft
A1	Mar. 2023	Released