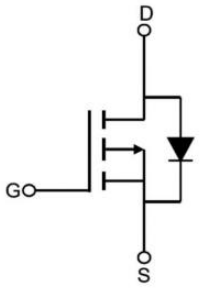
Features

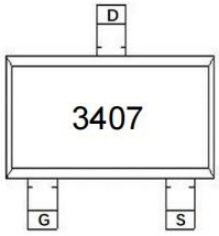
- -30V,-4.1A
  $R_{DS(ON)}$ <64mΩ @V_{GS}= -10V TYP: 50mΩ
  $R_{DS(ON)}$ <83mΩ @V_{GS}=-4.5V TYP: 65mΩ
- Advanced Trench Technology
- Lead free product is acquired



Schematic Diagram

Applications

- Interfacing Switching
- Load Switching
- Power Management



Marking and pin Assignment

Package Marking and Ordering Information

Device Marking	Device	Device Package	Reel Size	Tape width	Quantity (PCS)
3407	AP3407D	SOT-23	-	-	3000

ABSOLUTE MAXIMUM RATINGS (T_J=25℃ unless otherwise noted)

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	-30	V
Gate-Source Voltage	V_{GS}	±20	V
Continuous Drain Current (T_A=25℃) (1)	I_D	-4.1	A
Continuous Drain Current (T_A=100℃)	I_D	-2.7	A
Pulsed Drain Current (1)	I_{DM}	-16.4	A
Drain Power Dissipation	P_D	1.4	W
Thermal Resistance from Junction to Ambient	$R_{\theta JA}$	89	℃/W
Junction Temperature	T_J	-55~ +150	℃
Storage Temperature	T_{STG}	-55~ +150	℃

Notes:

1) Repetitive Rating: pulse width limited by maximum junction temperature

MOSFET ELECTRICAL CHARACTERISTICS(T_J=25℃ unless otherwise noted)

Parameter	Symbol	Test Condition	Min	Type	Max	Unit
Static Characteristics						
Drain-source breakdown voltage	$V_{(BR)DSS}$	V_{GS} = 0V, I_D =-250μA	-30	-	-	V
Zero gate voltage drain current	I_{DSS}	V_{DS} =-30V, V_{GS} = 0V	-	-	-1	μA
Gate-body leakage current	I_{GSS}	V_{GS} =±20V, V_{DS} = 0V	-	-	±100	nA
Gate threshold voltage	$V_{GS(th)}$	V_{DS} =V_{GS}, I_D =-250μA	-1.0	-1.5	-2.5	V
Drain-source on-resistance	$R_{DS(on)}$	V_{GS} =-10V, I_D =-3A	-	50	64	mΩ
		V_{GS} =-4.5V, I_D =-2A	-	65	83	
Dynamic characteristics						
Input Capacitance	C_{iss}	V_{DS} =-15V, VGS=0V, f=1MHz	-	540	-	pF
Output Capacitance	C_{oss}		-	75	-	
Reverse Transfer Capacitance	C_{rss}		-	55	-	
Switching characteristics						
Turn-on delay time	$t_{d(on)}$	V_{DD}=-15V, I_D=-2A, V_{GS}=-10V,R_G=3Ω	-	3	-	ns
Turn-on rise time	t_r		-	2	-	
Turn-off delay time	$t_{d(off)}$		-	25	-	
Turn-off fall time	t_f		-	15	-	
Total Gate Charge	Qg	V_{DS}=-15V, I_D=-2A, V_{GS}=-10V	-	12	-	nC
Gate-Source Charge	Qgs		-	3	-	
Gate-Drain Charge	Qgd		-	2	-	
Source-Drain Diode characteristics						
Diode Forward voltage	V_{SD}	T_J=25℃, V_{GS} =0V, I_S=-2A	-	-0.8	-1.2	V
Diode Forward current	I_S	T_C=25℃	-	-	-4.1	A
Body Diode Reverse Recovery Time	trr	T_J=25℃, I_F=-2A,di/dt=100A/us	-	9	-	ns
Body Diode Reverse Recovery Charge	Qrr		-	3	-	nC

Test Circuit

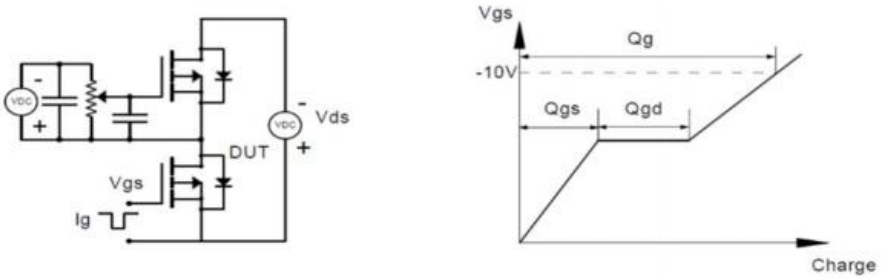


Figure 1: Gate Charge Test Circuit & Waveform

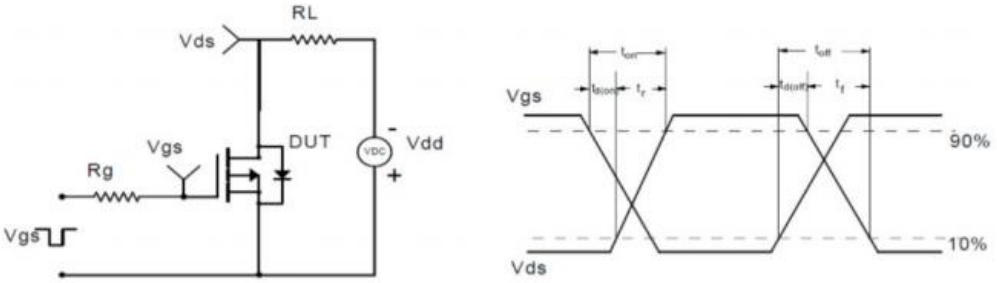


Figure 2: Resistive Switching Test Circuit & Waveform

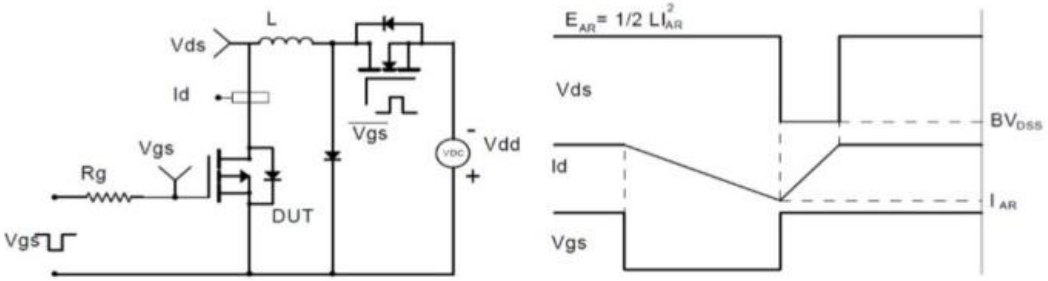


Figure 3: Unclamped Inductive Switching Test Circuit& Waveform

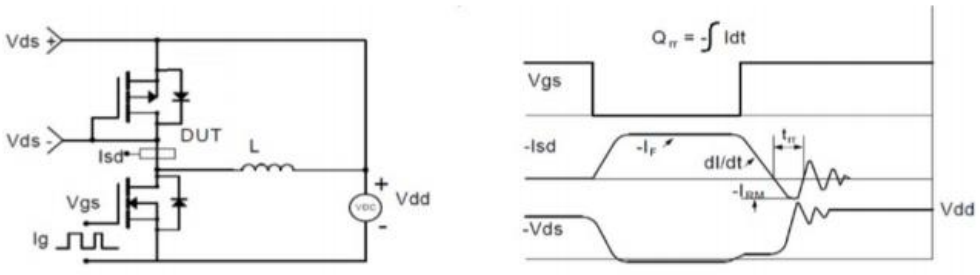


Figure 4: Diode Recovery Test Circuit & Waveform

Typical Characteristics

Figure 1: Output Characteristics

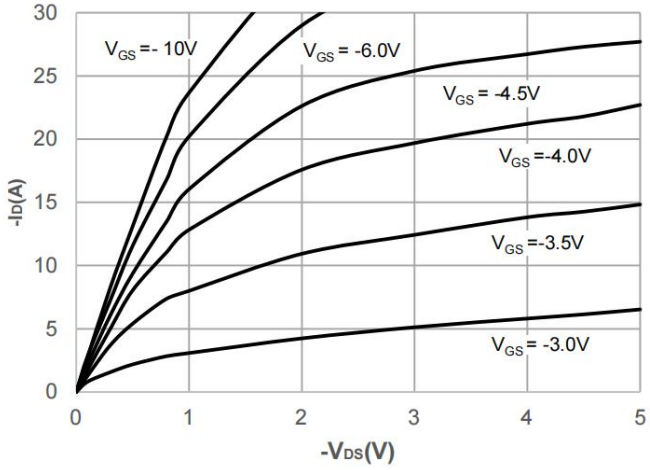


Figure 2: Typical Transfer Characteristics

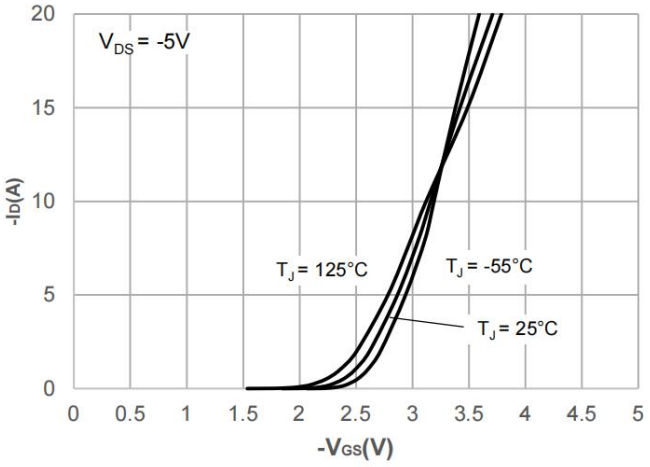


Figure 3: On-resistance vs. Drain Current

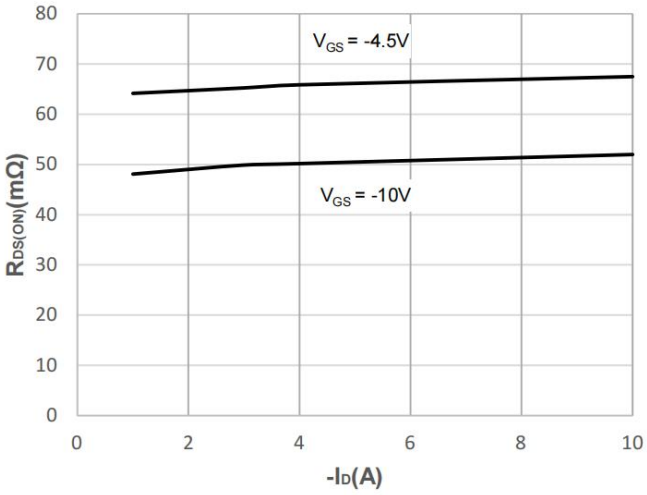


Figure 4: Body Diode Characteristics

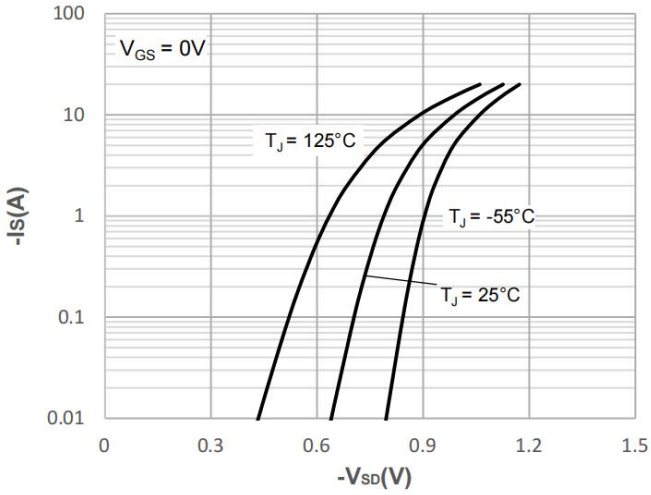


Figure 5: Gate Charge Characteristics

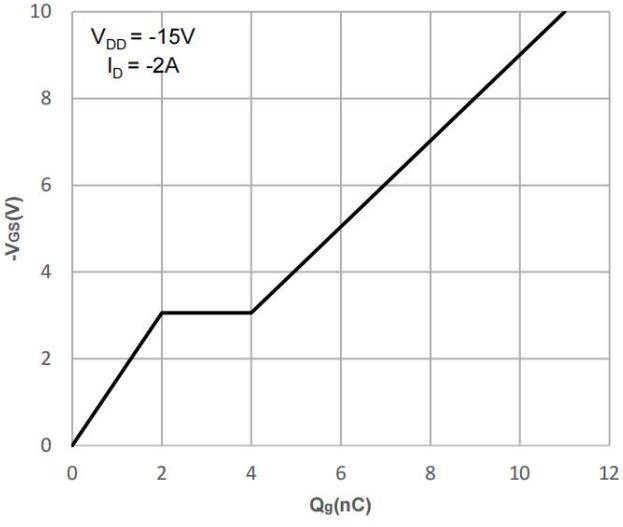
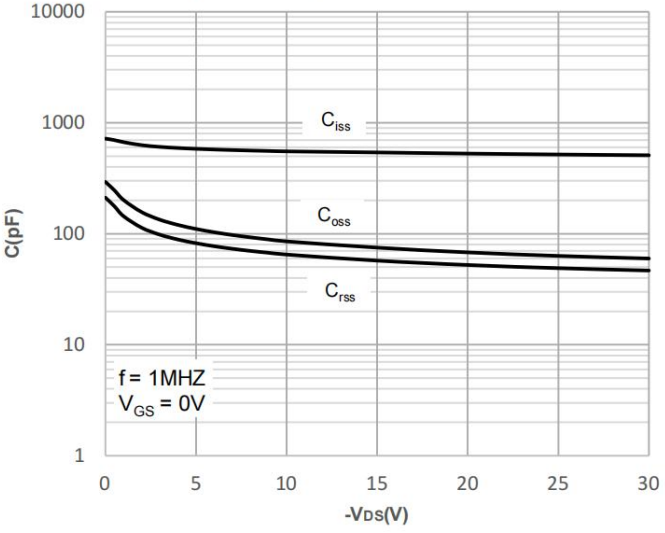


Figure 6: Capacitance Characteristics



Typical Characteristics

Figure 7: Normalized Breakdown voltage vs. Junction Temperature

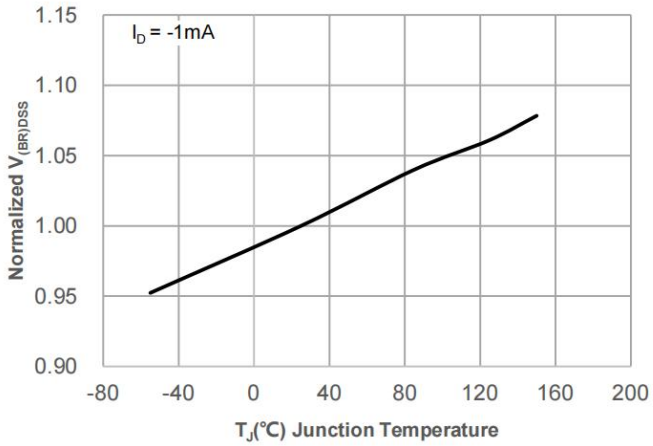


Figure 8: Normalized on Resistance vs. Junction Temperature

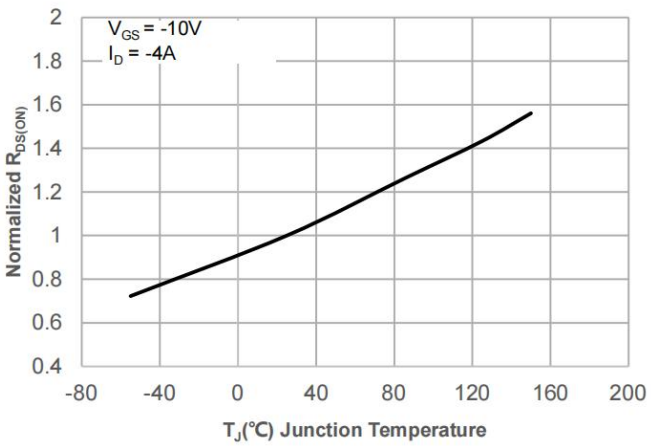


Figure 9: Maximum Continuous Drian Current vs. Ambient Temperature

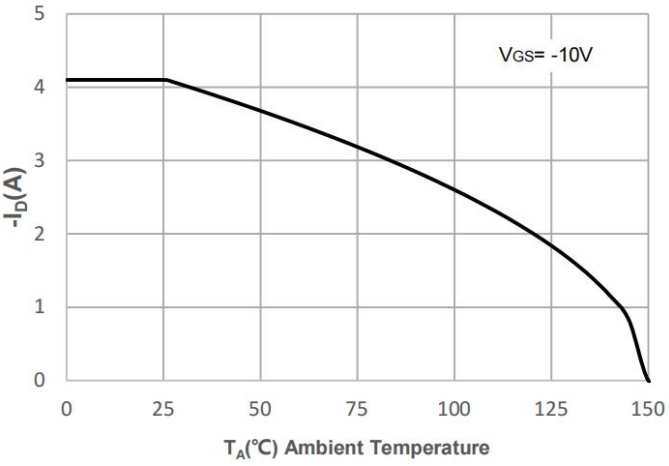


Figure 10: Maximum Safe Operating Area

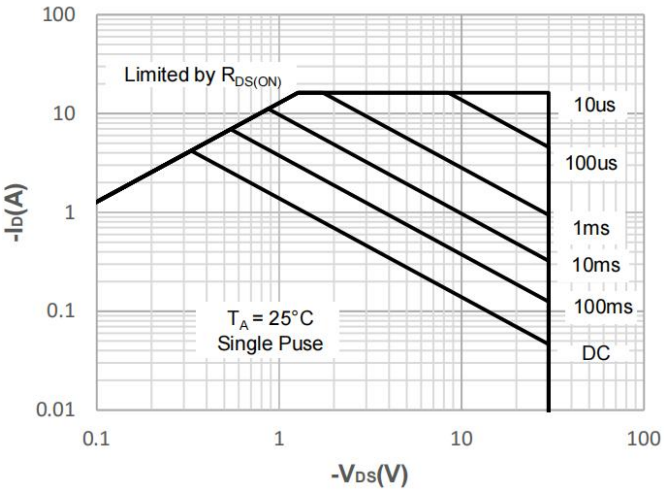
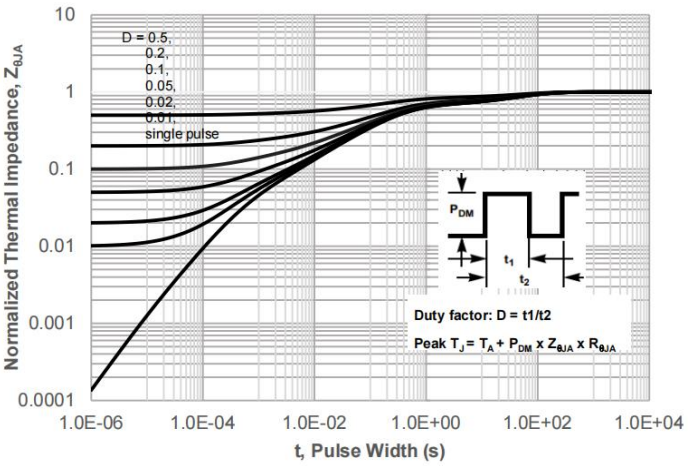
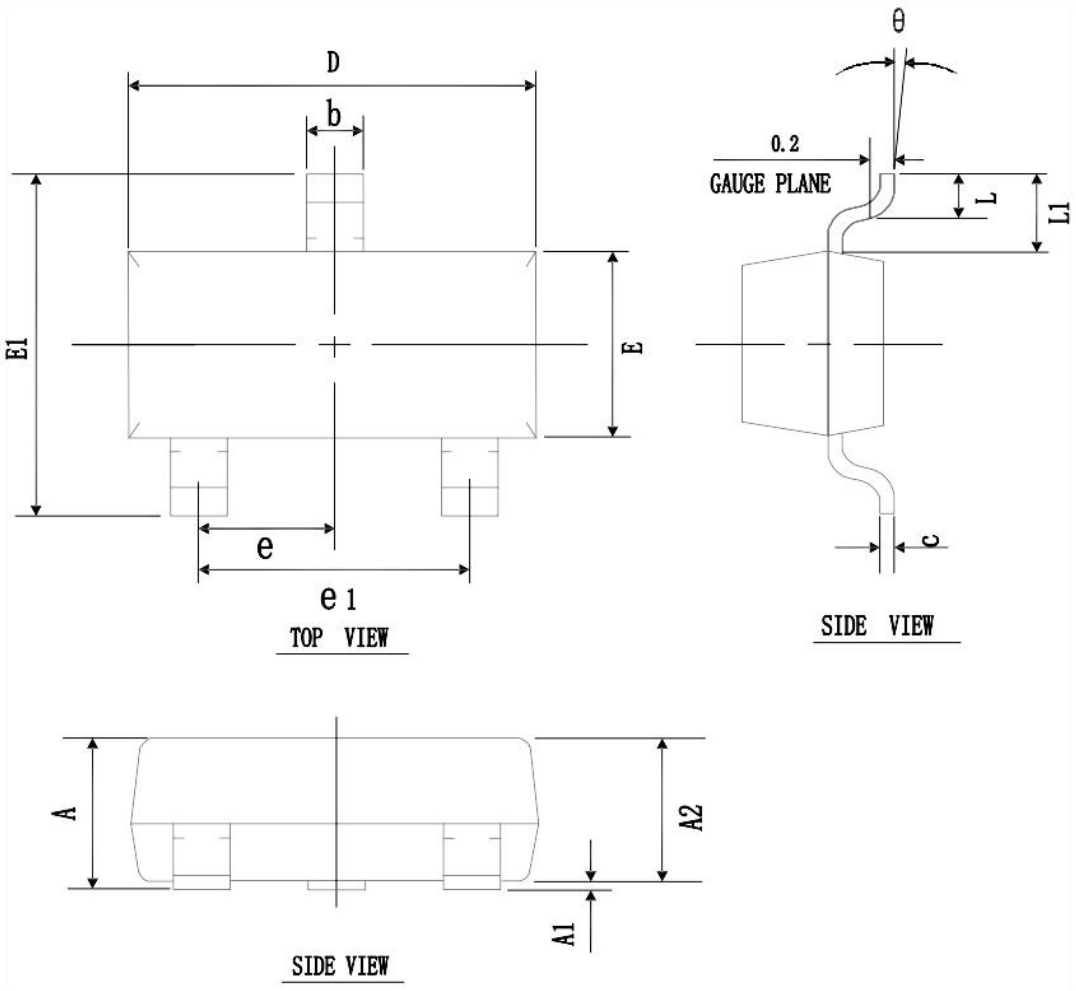


Figure 11: Normalized Maximum Transient Thermal Impedance



SOT-23 Package Information



COMMON DIMENSIONS
(UNITS OF MEASURE=mm)

SYMBOL	MIN	NOM	MAX
A	0.90	1.05	1.30
A1	0.00	0.05	0.10
A2	0.90	1.00	1.20
b	0.30	0.40	0.50
c	0.08	0.10	0.15
D	2.70	2.90	3.10
E	1.20	1.30	1.40
E1	2.20	2.40	2.70
L	0.20	0.40	0.50
θ	0°	5°	10°
L1	0.55 REF		
e	0.95 BSC		
e1	1.90 REF		

Revision History

Revision	Release	Remark
V1.0	2024/12/11	Initial Release

Disclaimer

The information given in this document describes the independent performance of the product,but similar performance is not guaranteed under other working conditions,and cannot be guaranteed when installed with other products or equipment.To achieve the required performance of the product in actual scenarios,the customer should conduct a complete application test to assess the functionality of the product.

Allpower assumes no responsibility for equipment failures result from using products at values that exceed the ratings,operating conditions,or other parameters listed in the product specifications.

The product described in this specification is not applicable for aerospace or other applications which
requires high reliability.Customers using or selling these products for use in medical,life-saving,or life-sustaining applications do so at their own risk and agree to fully indemnify.

Due to product or technical improvements,the information described or contained herein may be changed without prior notice.