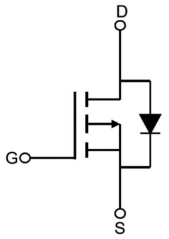
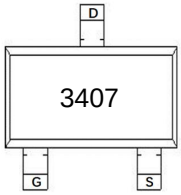
Feature

- -30V，-4.1A
  $R_{DS(ON)}$ <70mΩ @V_{GS}=-10V TYP=54 mΩ
  $R_{DS(ON)}$ <95mΩ @V_{GS}=-4.5V TYP=80 mΩ
- Advanced Trench Technology
- Excellent RDS(ON) and Low Gate Charge
- Lead free product is acquired



Schematic Diagram



Marking and pin Assignment

Application

- PWM Applications
- Load Switch
- Power Management

Package Marking and Ordering Information

Device Marking	Device	Device Package	Reel Size	Tape width	Quantity (PCS)
3407	AP3407	SOT-23		-	3000

ABSOLUTE MAXIMUM RATINGS (T_a=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℃)	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
Power Dissipation	P_D	1.4	W
Thermal Resistance from Junction to Ambient	$R_{\theta JA}$	89	℃/W
Junction Temperature	T_J	150	℃
Storage Temperature	T_{STG}	-55~ +150	℃

MOSFET ELECTRICAL CHARACTERISTICS(T_a=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(2)	$R_{DS(on)}$	V_{GS} =-10V, I_D =-4A	-	55	70	mΩ
		V_{GS} =-4.5V, I_D =-3A	-	80	95	
Dynamic characteristics						
Input Capacitance	C_{iss}	V_{DS} =-15V, V_{GS} =0V, f =1MHz	-	580	-	pF
Output Capacitance	C_{oss}		-	98	-	
Reverse Transfer Capacitance	C_{rss}		-	74	-	
Switching characteristics						
Turn-on delay time	$t_{d(on)}$	V_{DD}=-15V, I_D=-1A, V_{GS}=-10V, R_G=2.5Ω	-	7	-	ns
Turn-on rise time	t_r		-	4	-	
Turn-off delay time	$t_{d(off)}$		-	18	-	
Turn-off fall time	t_f		-	13	-	
Total Gate Charge	Qg	VDS=-15V, ID=-4.1A, VGS=-10V	-	11	-	nC
Gate-Source Charge	Qgs		-	1.9	-	
Gate-Drain Charge	Qgd		-	2	-	
Source-Drain Diode characteristics						
Diode Forward voltage	V_{DS}	V_{GS} =0V, I_S=-4.1A	-	-0.8	-1.2	V
Diode Forward current	I_S		-	-	-4.1	A

Notes:

1. Repetitive Rating: pulse width limited by maximum junction temperature
2. Pulse Test: pulse width≤300μs, duty cycle≤2%
3. Surface Mounted on FR4 Board,t≤10 sec

Typical Performance Characteristics

Figure1: Output Characteristics

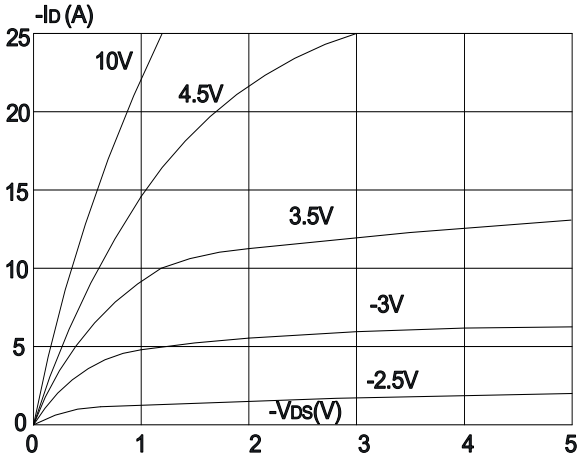


Figure 2: Typical Transfer Characteristics

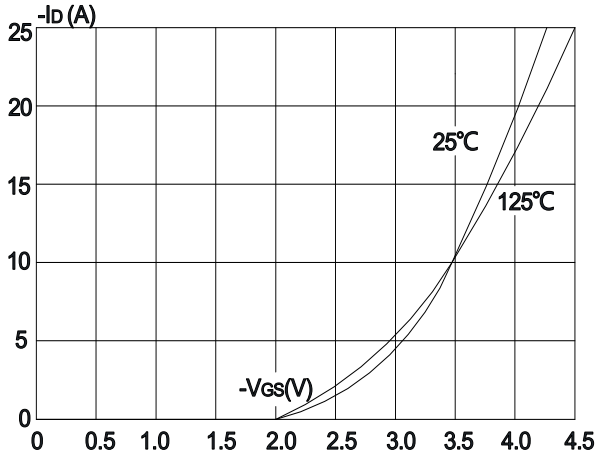


Figure 3: On-resistance vs. Drain Current

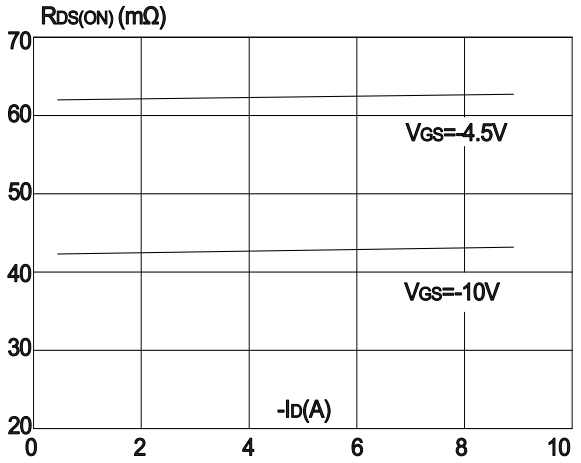


Figure 4: Body Diode Characteristics

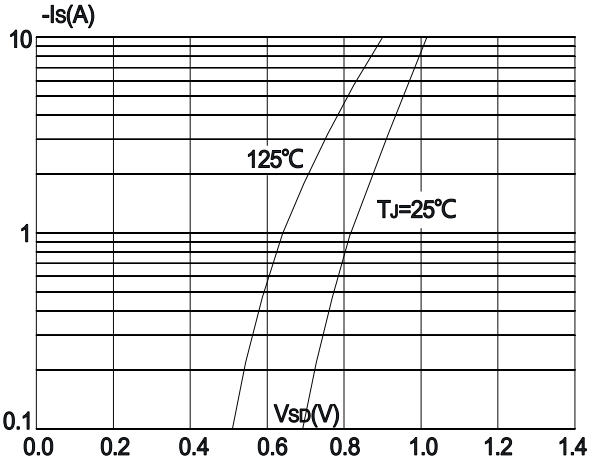


Figure 5: Gate Charge Characteristics

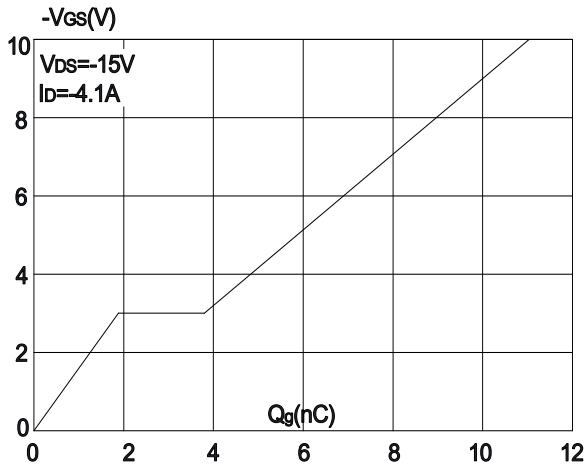
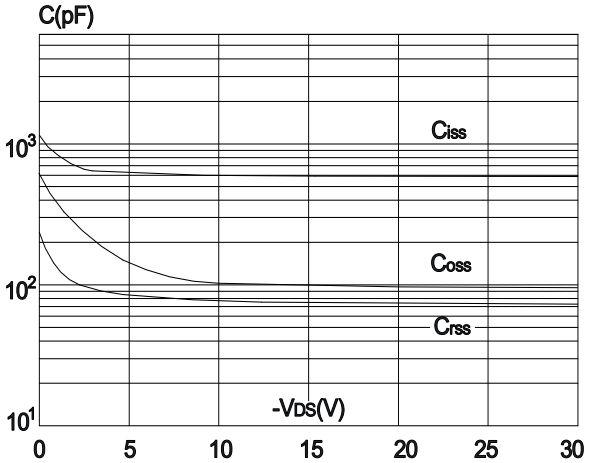


Figure 6: Capacitance Characteristics



Typical Performance Characteristics

Figure 7: Normalized Breakdown Voltage vs. Junction Temperature

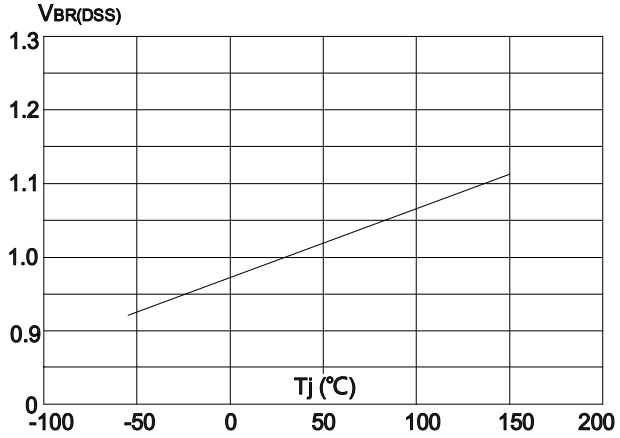


Figure 8: Normalized on Resistance vs. Junction Temperature

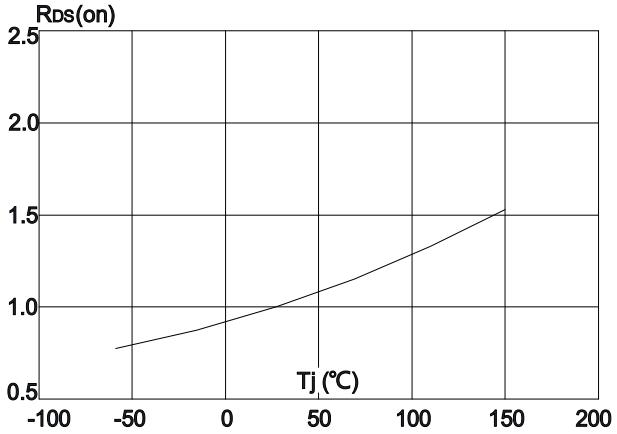


Figure 9: Maximum Safe Operating Area

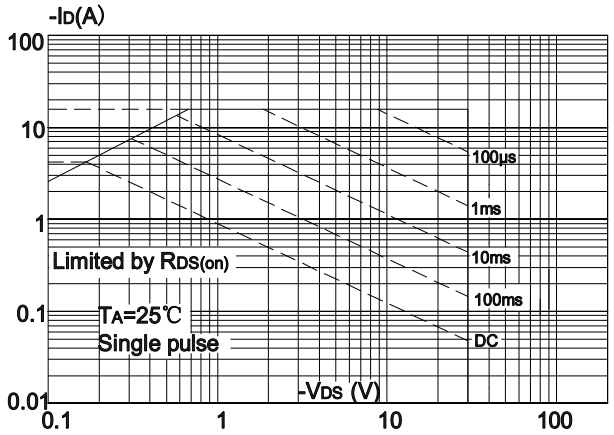


Figure 10: Maximum Continuous Drain Current vs. Ambient Temperature

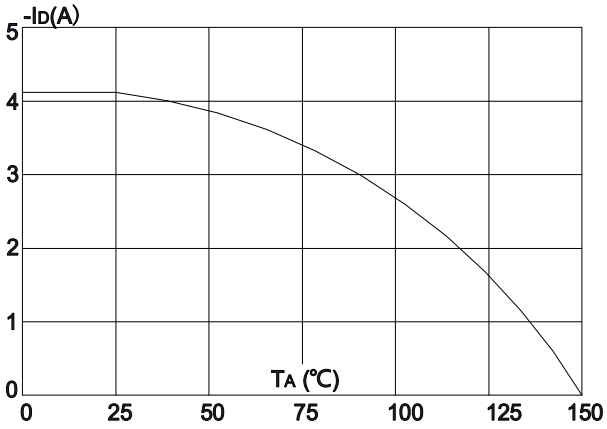
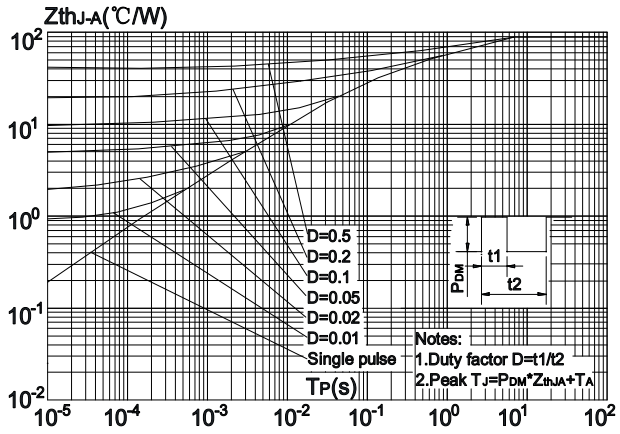
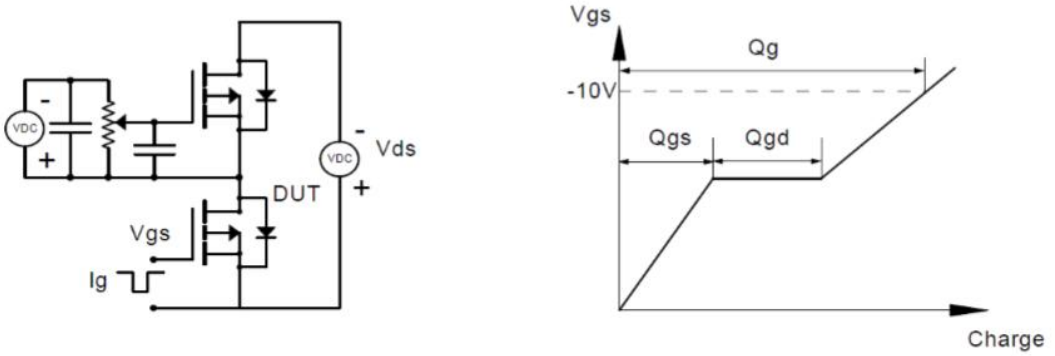


Figure.11: Maximum Effective Transient Thermal Impedance, Junction-to-Ambient

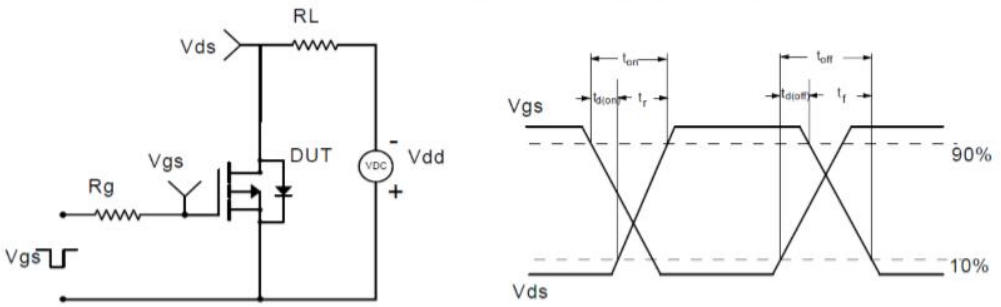


Typical Performance Characteristics

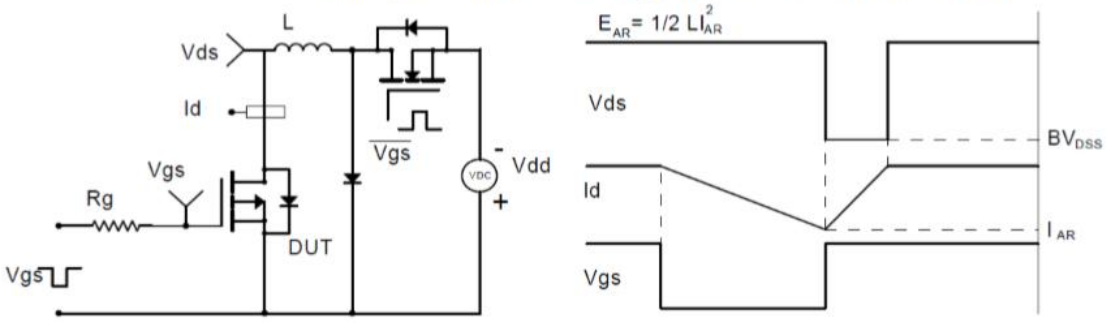
Gate Charge Test Circuit & Waveform



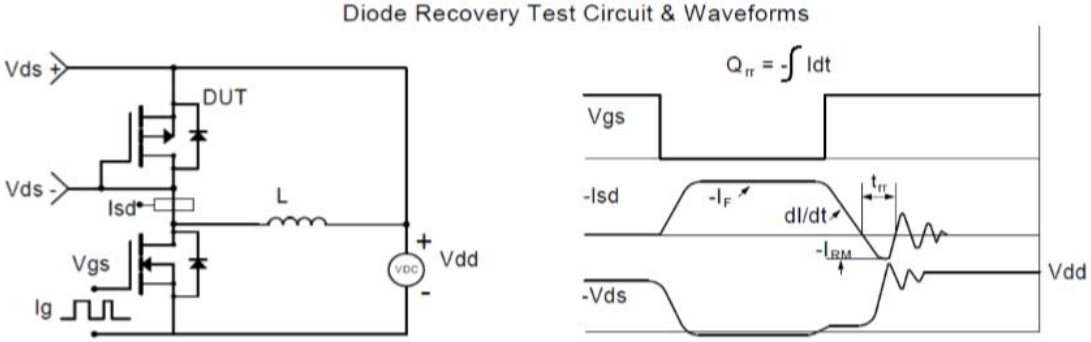
Resistive Switching Test Circuit & Waveforms



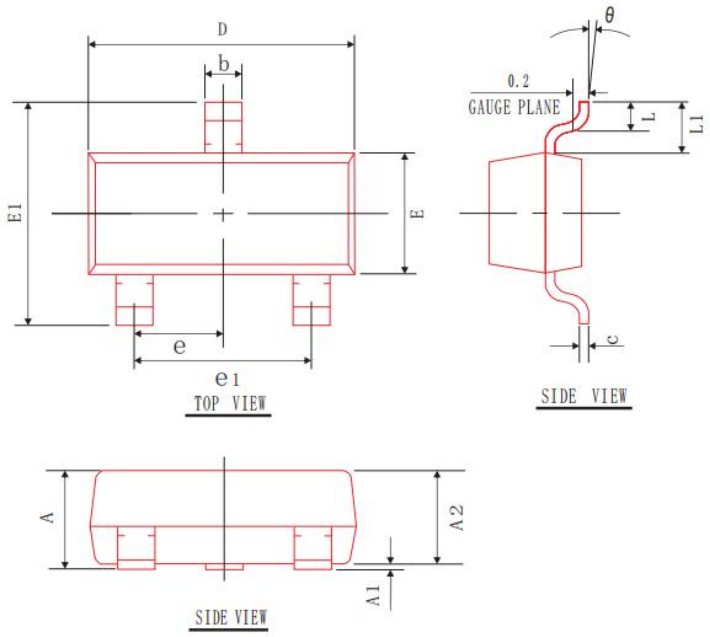
Unclamped Inductive Switching (UIS) Test Circuit & Waveforms



Diode Recovery Test Circuit & Waveforms



Package Mechanical Data-SOT-23



COMMON DIMENSIONS
(UNITS OF MEASURE=mm)

SYMBOL	MIN	NOM	MAX
A	0.90	1.05	1.20
A1	0.00	0.05	0.10
A2	0.90	1.00	1.10
b	0.30	0.40	0.50
c	0.08	0.10	0.15
D	2.80	2.90	3.00
E	1.20	1.30	1.40
E1	2.30	2.40	2.50
L	0.30	0.40	0.50
θ	0°	5°	10°
L1	0.55 REF		
e	0.95 BSC		
e1	1.90 REF		