AP6324

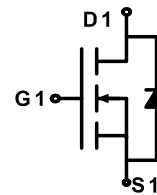**N-Channel Enhancement Mosfet**
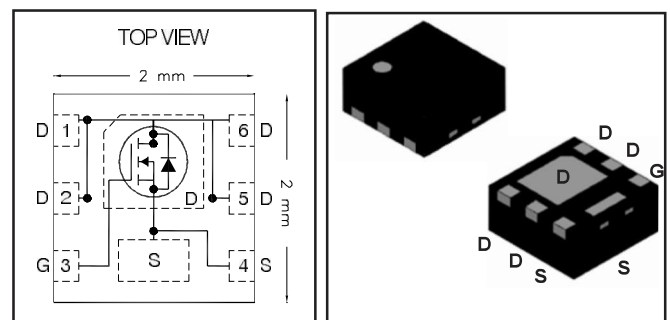
Feature

- 30V,5.8A

  $R_{DS(ON)} < 26m\Omega @V_{GS}=10V$ TYP=18 mΩ

  $R_{DS(ON)} < 32m\Omega @V_{GS}=4.5V$ TYP=23 mΩ
- Advanced Trench Technology
- Lead free product is acquired

Schematic diagram

Application

- Interfacing Switching
- Load Switching
- Power management

Package Marking and Ordering Information

Device Marking	Device	Device Package	Reel Size	Tape width	Quantity (PCS)
6324	AP6324	PDFN2*2	7 inch	-	-

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	5.8	A
Continuous Drain Current (T$_a$ =70℃)	I_D	3.8	A
Pulsed Drain Current	I_{DM}	23	A
Power Dissipation	P_D	1.47	W
Thermal Resistance from Junction to Ambient[4]	$R_{\theta JA}$	`85	℃/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[3]	$V_{GS(th)}$	V_{DS} =V_{GS}, I_D =250μA	1.0	1.5	2.5	V
Drain-source on-resistance[3]	$R_{DS(on)}$	V_{GS} =10V, I_D =5.8A	-	18	26	mΩ
		V_{GS} =4.5V, I_D =3A	-	23	32	
Dynamic characteristics						
Input Capacitance	C_{iss}	V_{DS} =15V, V_{GS} =0V, f =1MHz	-	490	-	pF
Output Capacitance	C_{oss}		-	79	-	
Reverse Transfer Capacitance	C_{rss}		-	61	-	
Switching characteristics						
Turn-on delay time	$t_{d(on)}$	V_{DD}=15V, I_D=3A, V_{GS}=4.5V, R_G=10Ω	-	4.5	-	ns
Turn-on rise time	t_r		-	2.5	-	
Turn-off delay time	$t_{d(off)}$		-	14.5	-	
Turn-off fall time	t_f		-	3.5	-	
Total Gate Charge	Qg	VDS=15V, ID=5.8A, VGS=4.5V	-	5.2	-	nC
Gate-Source Charge	Qgs		-	0.9	-	
Gate-Drain Charge	Qgd		-	1.3	-	
Source-Drain Diode characteristics						
Diode Forward voltage[3]	V_{DS}	V_{GS} =0V, I_S=5.8A	-	-	1.2	V
Diode Forward current[4]	I_S		-	-	5.8	A

Notes:

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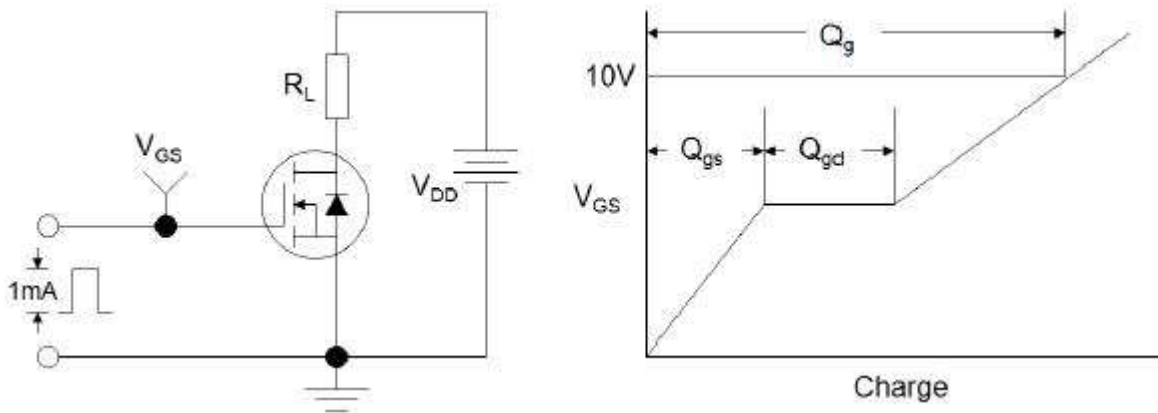3. Surface Mounted on FR4 Board,t≤10 sec

Test Circuit

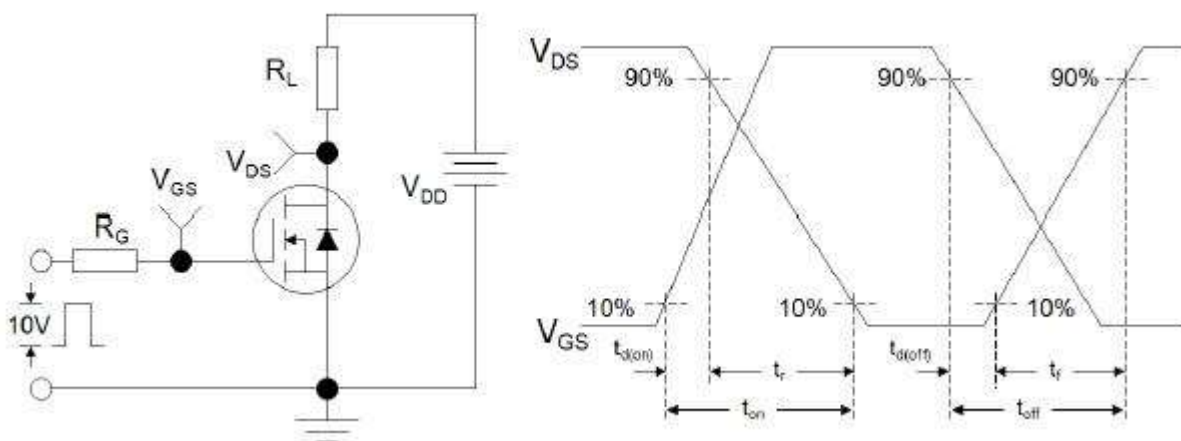**Figure1:Gate Charge Test Circuit & Waveform**

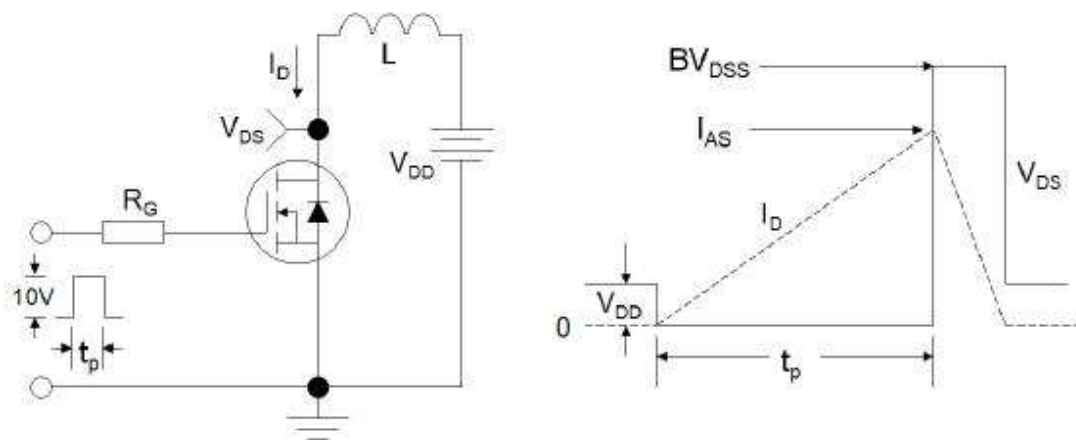**Figure 2: Resistive Switching Test Circuit & Waveforms**

Figure 3:Unclamped Inductive Switching Test Circuit & Waveforms
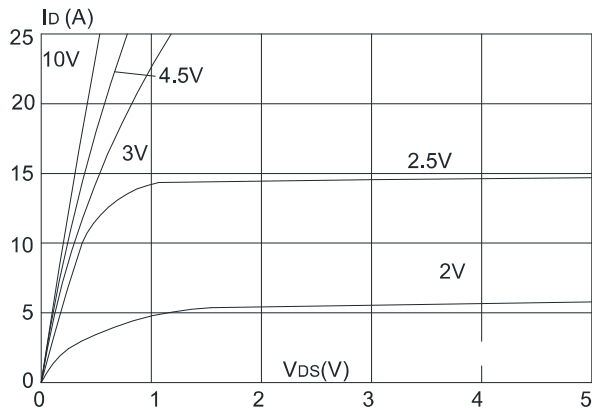
Figure1: Output Characteristics
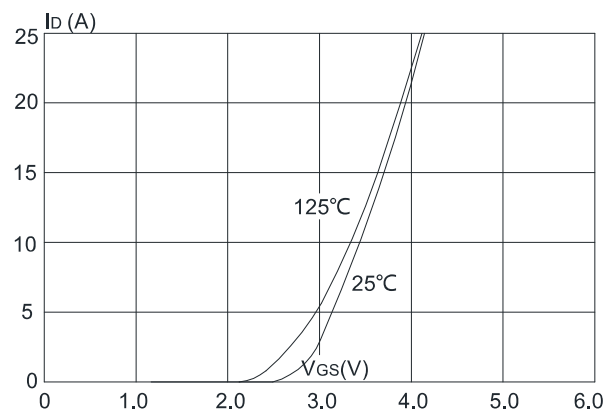

Figure 2: Typical Transfer Characteristics

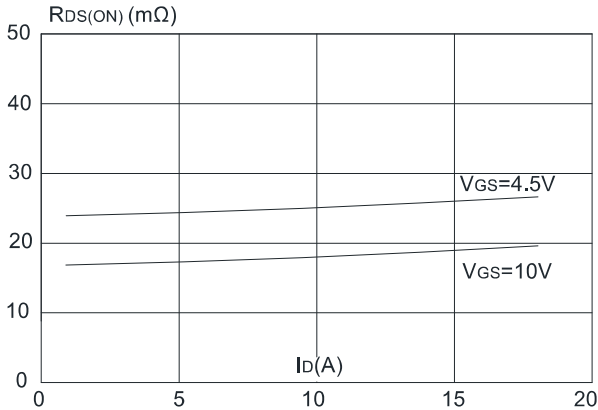**Figure 3:** On-resistance vs. Drain Current

Figure 4: Body Diode Characteristics

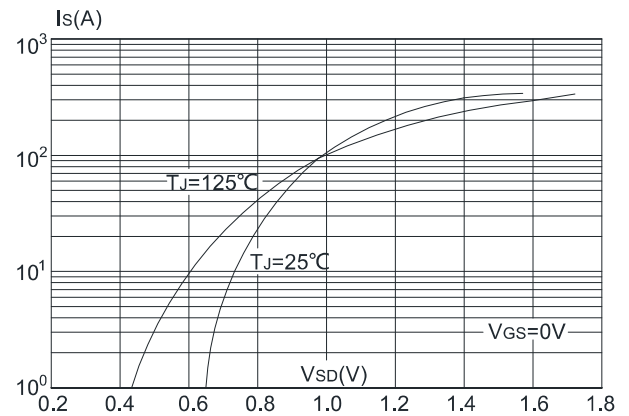**Figure 5:** Gate Charge Characteristics

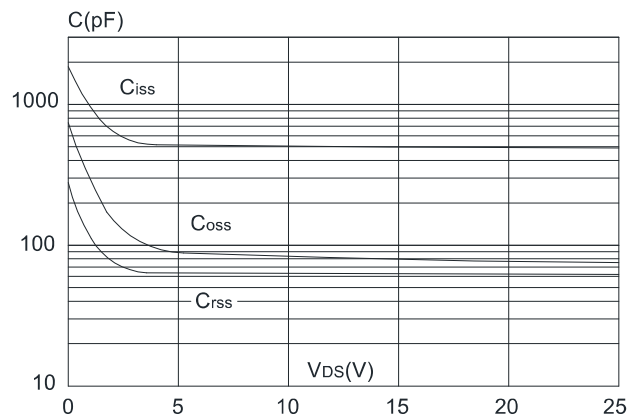**Figure 6:** Capacitance Characteristics

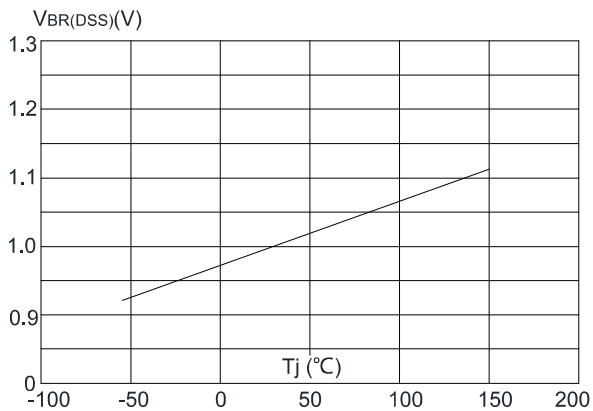**Figure 7:** Normalized Breakdown Voltage vs. Junction Temperature

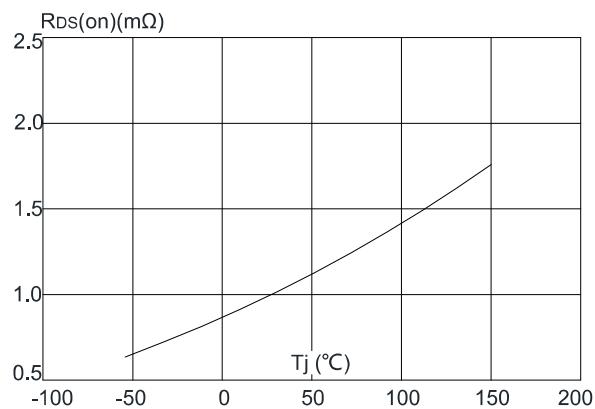**Figure 8:** Normalized on Resistance vs. Junction Temperature

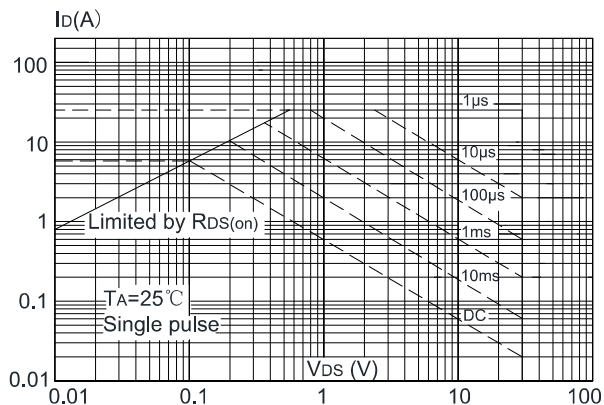**Figure 9:** Maximum Safe Operating Area

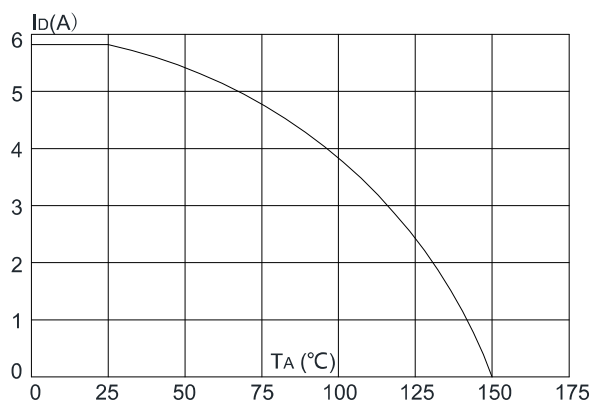**Figure 10:** Maximum Continuous Drain Current vs. Ambient Temperature
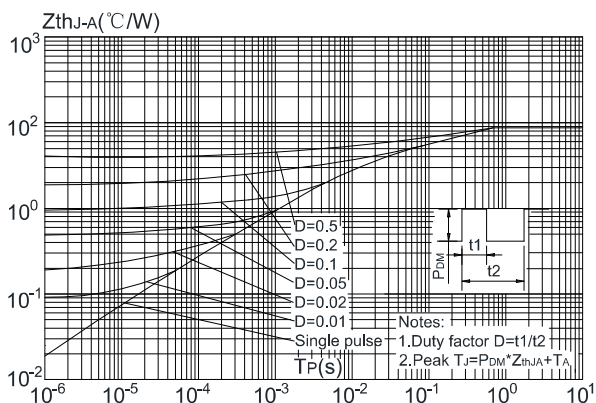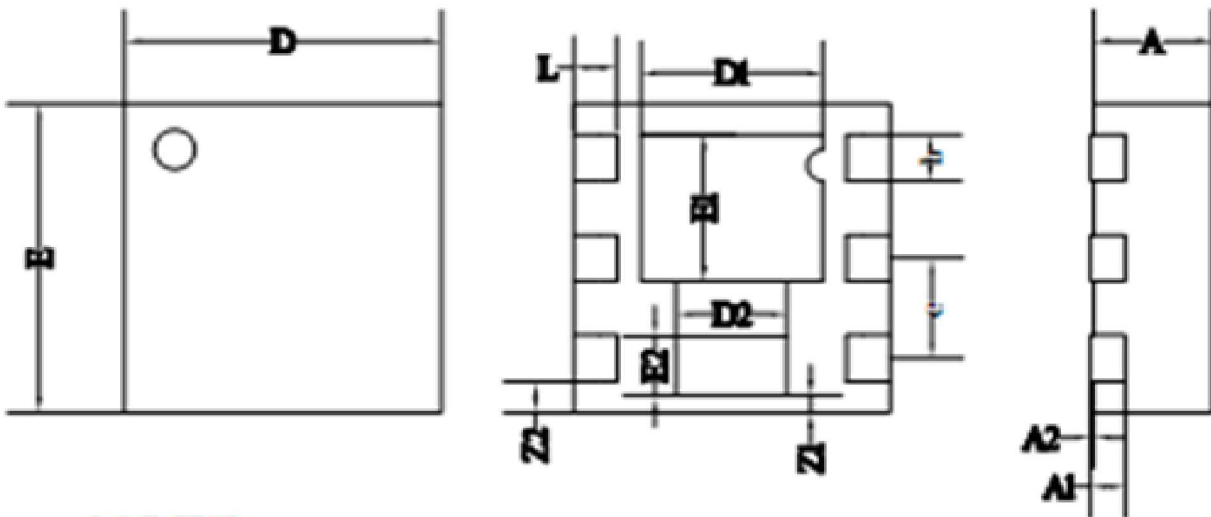

Figure.11: Maximum Effective Transient Thermal Impedance, Junction-to-Ambient

Package Information

NOTE:
All dimensions are in mm

	MIN	NOM	MAX
D	1.95	2.00	2.05
E	1.95	2.00	2.05
D1	1.10	1.15	1.20
E1	0.90	0.95	1.00
D2	0.65	0.70	0.75
E2	0.33	0.38	0.43
L	0.23	0.275	0.33
b	0.25	0.30	0.35
e	0.65BSC		
A	0.45	0.50	0.55
A1	0.150REF		
A2	0.00	-	0.05
Z1	0.06	0.11	0.16
Z2	0.15	0.20	0.25