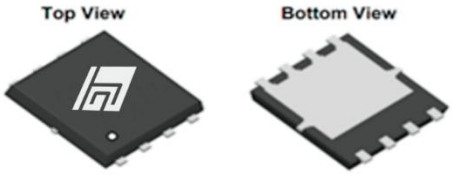
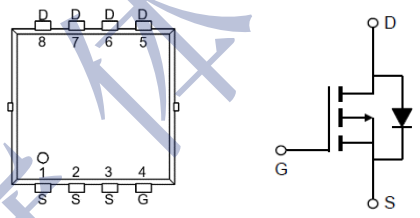
-60V_{DS}/±20V_{GS} P-Channel EpicMOS™

Features

- V_{DS}=-60V,I_D=-45A
- $R_{DS(ON)}$=16.5mΩ（TYP.）V_{GS}=-10V,I_D=-20A
- $R_{DS(ON)}$=18.5mΩ（TYP.）V_{GS}=-4.5V,I_D=-20A
- Fast Switching
- Low On-Resistance
- Enhancement Mode
- Halogen and Antimony Free,Rohs compliant

PDFN5060





Applications

- Switch switching
- Power management in portable/desktop PCs

Ordering Information

Orderable Device	Package	Marking infomation	Package Qty.
AET6162AE	PDFN5060	AET6162AE ywwFxxx	5000pcs/Reel

Absolute Maximum Ratings (T$_C$=25℃,unless otherwise noted)

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	-60	V
Gate-Source Voltage	V_{GS}	±20	V
Continuous Drain Current (T$_C$=25℃)	I_D	-45	A
Continuous Drain Current (T$_C$=100℃)		-31	A
Pulsed Drain Current	I_{DM}	-180	A
Avalanche Current(L=0.1mH)	I_{AS}	45	A
Avalanche Energy, Single Pulsed	E_{AS}	101	mJ
Maximum Power Dissipation (T$_C$=25℃)	P_D	113	W
Maximum Power Dissipation (T$_C$=100℃)		45	W
Operating,Storage Temperature Range	T_J,T_{STG}	-55~150	℃

Thermal Characteristics

Parameter	Symbol	Min.	Typ.	Max.	Unit
Thermal Resistance,Junction-to-Case	$R_{\theta JC}$	-	1.1	2.0	℃/ W
Thermal Resistance,Junction-to-Ambient	$R_{\theta JA}$	-	40	50	℃/ W

Electrical Characteristics

Parameter	Symbol	Test Conditions	Min.	Typ.	Max.	Unit
Drain-Source Breakdown Voltage	BV_{DSS}	V_{GS}=0V,I_D=-250μA	-60	-	-	V
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}=-60V, V_{GS}=0V	-	-	-1	μA
Gate -Source 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	-1.1	-1.6	-2.1	V
Drain-Source On-stage Resistance	$R_{DS(ON)}$	V_{GS}=-10V,I_D=-20A	-	16.5	20.5	mΩ
		V_{GS}=-4.5V,I_D=-20A	-	18.5	23.5	

Dynamic Characteristics

Parameter	Symbol	Test Conditions	Min.	Typ.	Max.	Unit
Input capacitance	C_{iss}	V_{DS}=-30V	-	4965	-	pF
Output capacitance	C_{oss}	V_{GS}=0V	-	232	-	
Reverse transfer capacitance	C_{rss}	f=1MHz	-	175	-	
Gate Resistance	R_g	f=1MHz	-	8.5	-	Ω
Total Gate Charge	Q_g	V_{DS}=-30V	-	96	-	nC
Gate Source Charge	Q_{gs}	V_{GS}=-10V	-	18	-	
Gate Drain Charge	Q_{gd}	I_D=-20A	-	16	-	
Turn-on delay Time	$t_{d(on)}$	V_{GS}=-10V	-	12	-	ns
Rise time	t_r	V_{DS}=-30V	-	60	-	
Turn-off delay Time	$t_{d(off)}$	R_L=1.5Ω	-	160	-	
Fall time	t_f	R_G=3Ω	-	137	-	

Reverse Diode Characteristics

Parameter	Symbol	Test Conditions	Min.	Typ.	Max.	Unit
Body Diode Forward Voltage	V_{SD}	V_{GS}=0V,I_{SD}=-1A	-	-0.7	-1	V
Reverse Recovery Time	t_{rr}	V_{GS}=0V,I_{SD}=-20A	-	37	-	ns
Reverse Recovery Charge	Q_{rr}	d_i/d_t=100A/μs	-	35	-	nC

Electrical Characteristics Diagrams

Figure 1. On-Region Characteristics

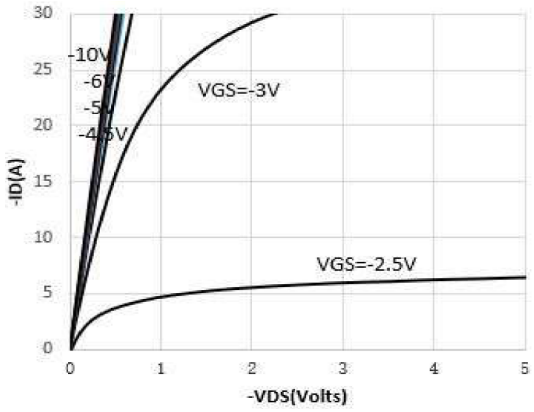


Figure 2. Transfer Characteristics

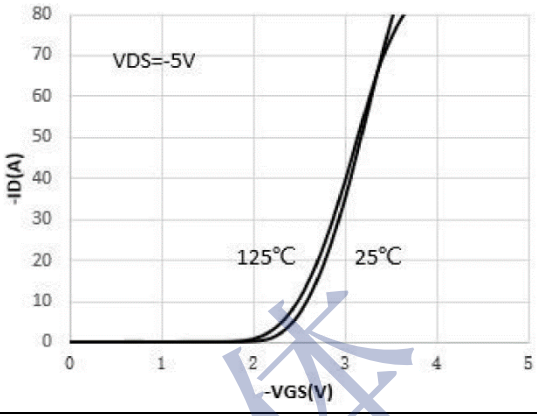


Figure 3. On-Resistance vs. Drain Current and Gate Voltage

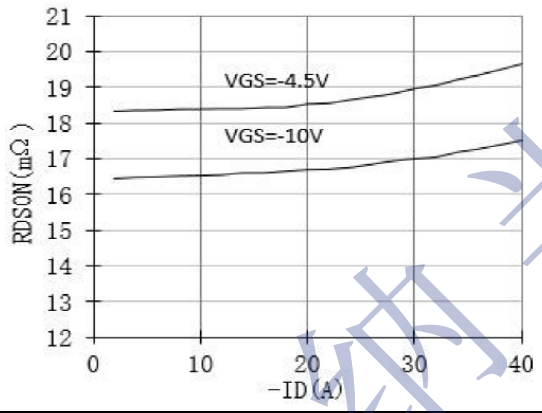


Figure 4. On-Resistance vs. Junction Temperature

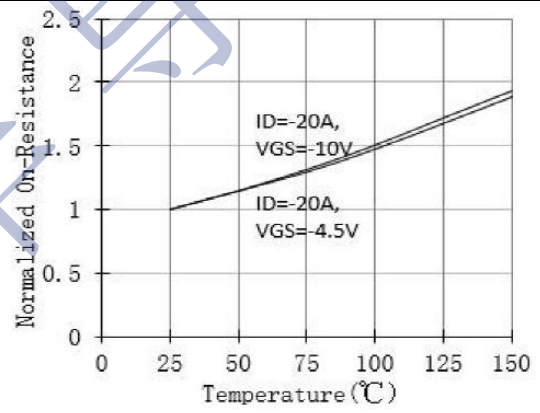


Figure 5. On-Resistance vs. Gate-Source Voltage

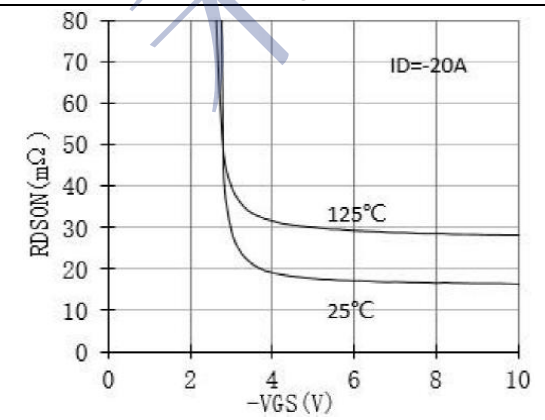


Figure 6. Body-Diode Characteristics

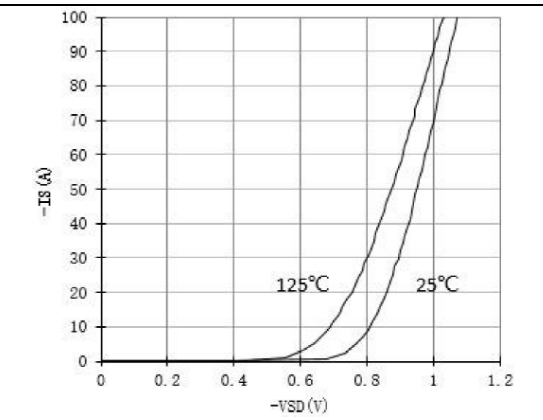


Figure 7. Gate-Charge Characteristics

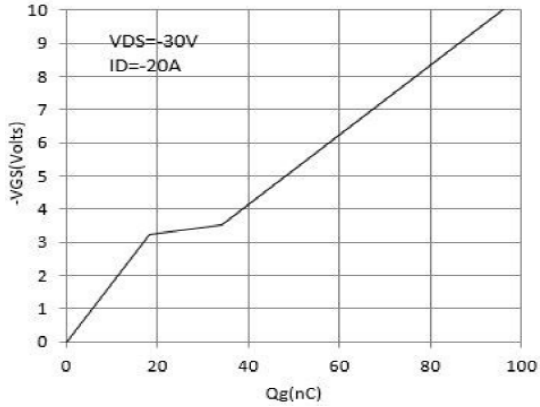


Figure 8. Capacitance Characteristics

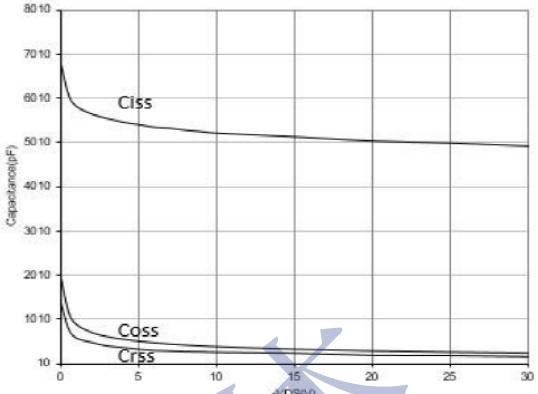


Figure 9. Maximum Forward Biased Safe Operating Area

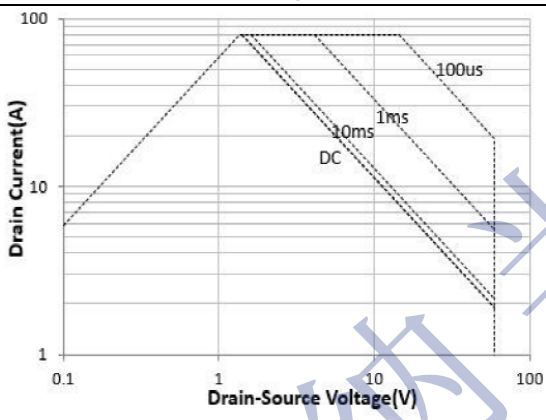


Figure 10. Single Pulse Power Rating Junction-to-Ambient

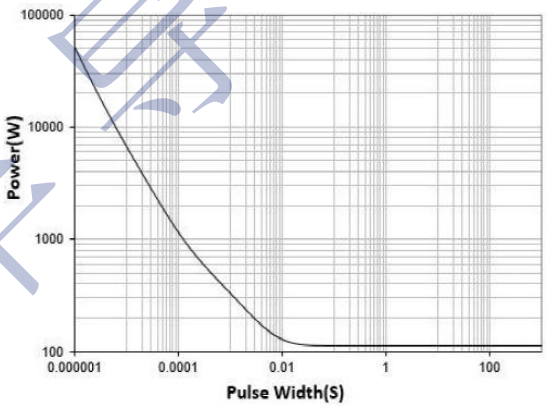
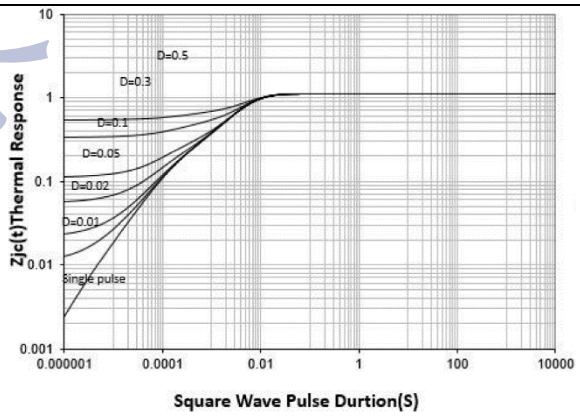
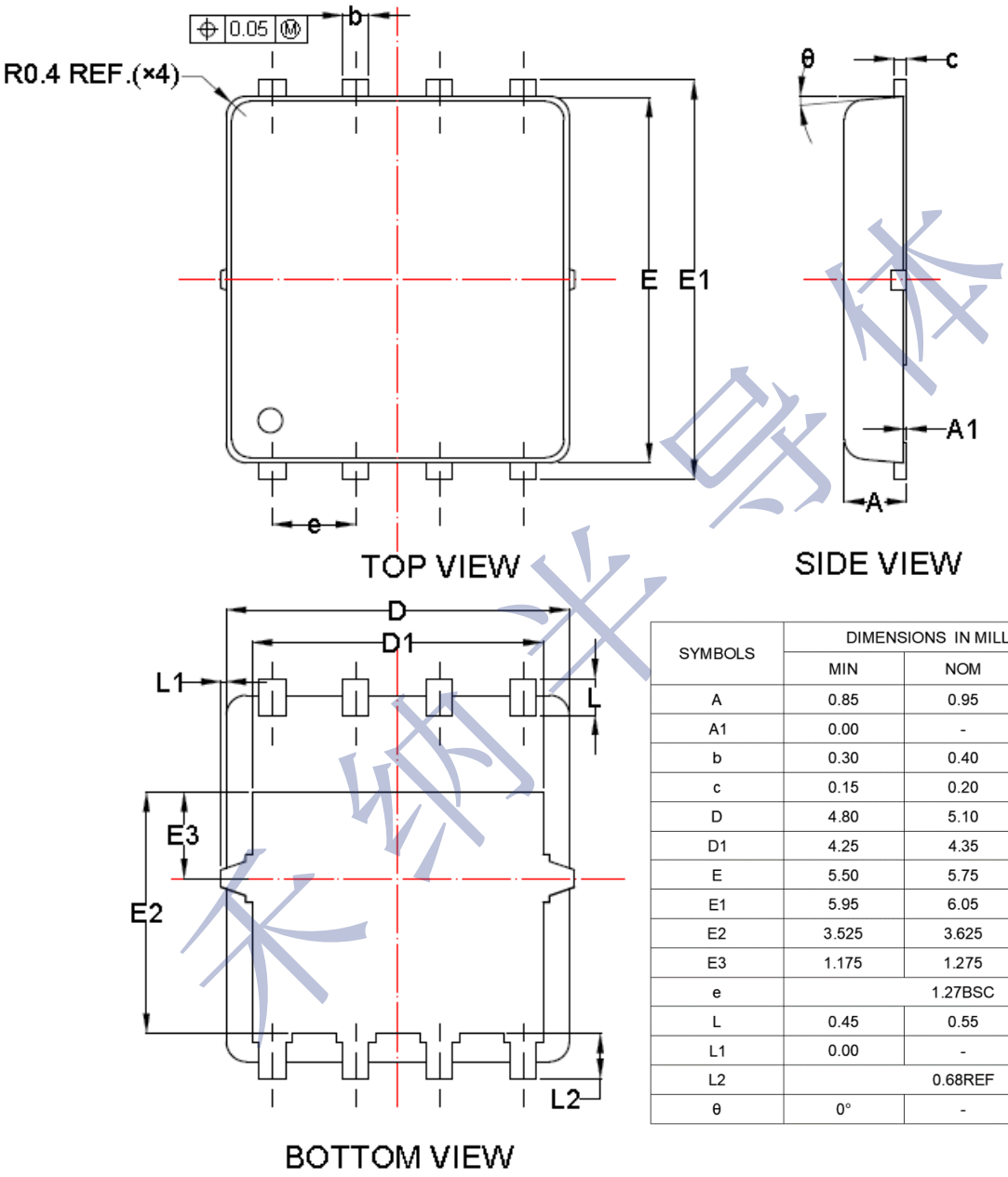


Figure 11. Normalized Maximum Transient Thermal Impedance



Physical Dimensions

PDFN5060



SYMBOLS	DIMENSIONS IN MILLIMETERS		
	MIN	NOM	MAX
A	0.85	0.95	1.10
A1	0.00	-	0.05
b	0.30	0.40	0.50
c	0.15	0.20	0.25
D	4.80	5.10	5.40
D1	4.25	4.35	4.45
E	5.50	5.75	6.00
E1	5.95	6.05	6.25
E2	3.525	3.625	3.725
E3	1.175	1.275	1.375
e		1.27BSC	
L	0.45	0.55	0.65
L1	0.00	-	0.15
L2		0.68REF	
θ	0°	-	10°