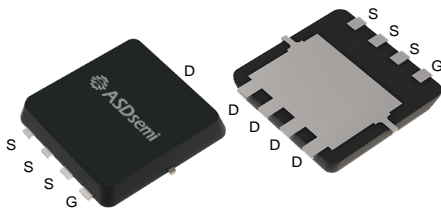



Features

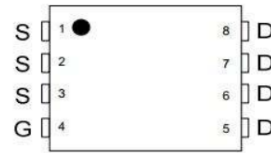
- High switching speed
- Improved dv/dt capability
- Low gate charge
- Low reverse transfer capacitance
- Lead free in compliance with EU RoHS 2.0
- Green molding compound as per IEC 61249 standard

Product Summary

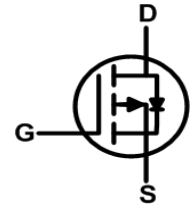
BVDSS	-40	V
RDS(on)Typ.@VGS=-10V	6.5	mΩ
ID	-100	A



PDFN5*6-8



Pin Assignment



P-channel

Maximum Ratings and Thermal Characteristics ($T_A=25^{\circ}\text{C}$ unless otherwise noted)

PARAMETER		SYMBOL	LIMIT	UNITS
Drain-Source Voltage		V_{DS}	-40	V
Gate-Source Voltage		V_{GS}	± 20	
Continuous Drain Current (Note 4)	$T_C=25^{\circ}\text{C}$	I_D	-100	A
	$T_C=100^{\circ}\text{C}$		-53	
Pulsed Drain Current (Note 1)	$T_C=25^{\circ}\text{C}$	I_{DM}	-400	
Power Dissipation	$T_C=25^{\circ}\text{C}$	P_D	69.4	W
	$T_C=100^{\circ}\text{C}$		27.8	
Single Pulse Avalanche Energy (Note 6)		E_{AS}	245	mJ
Operating Junction and Storage Temperature Range		T_J, T_{STG}	-55~150	$^{\circ}\text{C}$
Typical Thermal Resistance (Note 4,5)	Junction to Case	$R_{\theta JC}$	1.8	$^{\circ}\text{C}/\text{W}$
	Junction to Ambient	$R_{\theta JA}$	62.5	

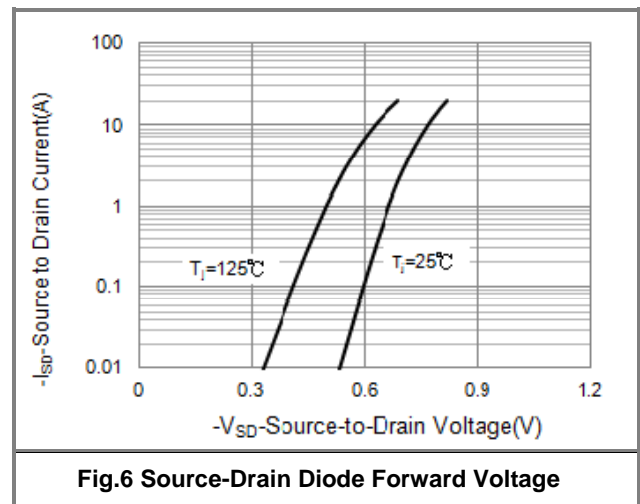
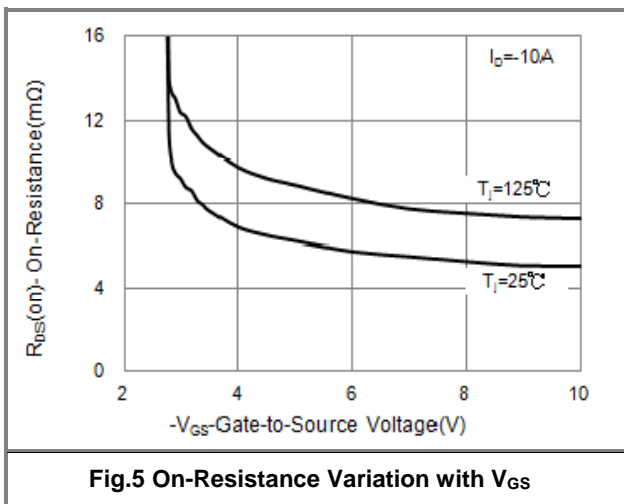
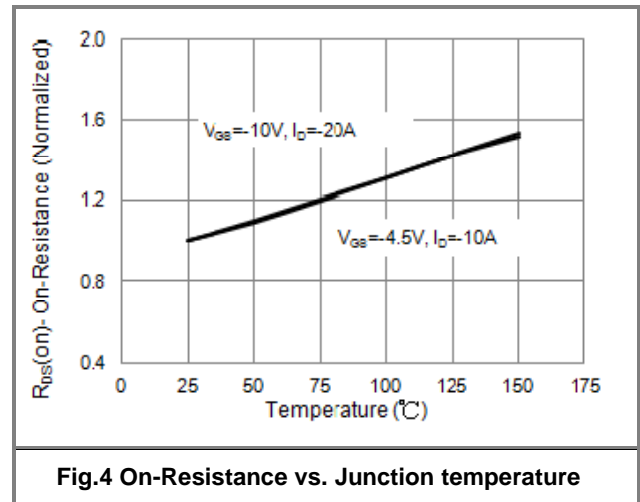
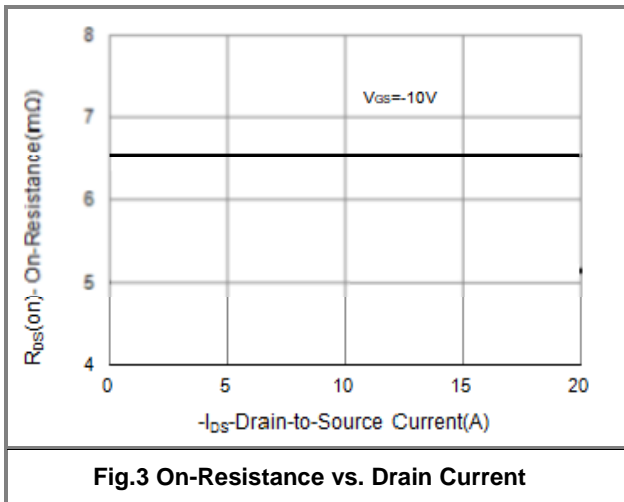
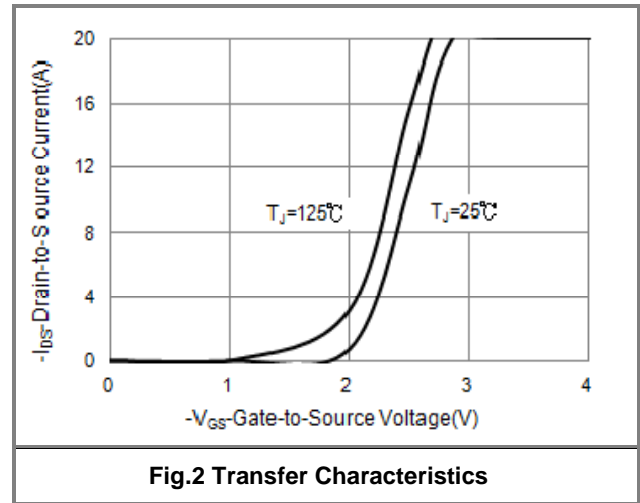
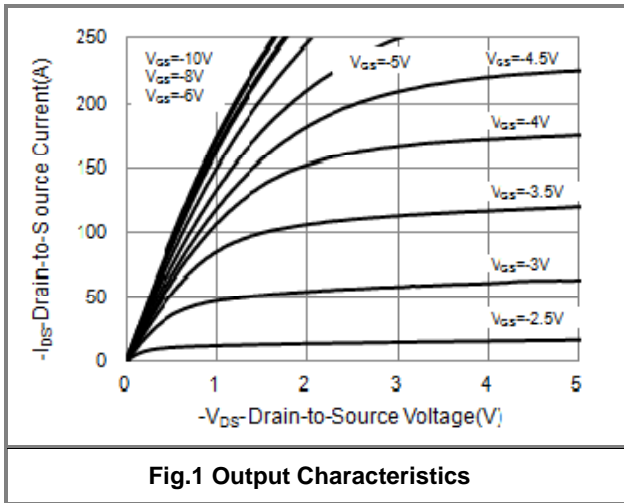
Electrical Characteristics ($T_A=25^{\circ}\text{C}$ unless otherwise noted)

PARAMETER	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNITS
Static						
Drain-Source Breakdown Voltage	BV_{DSS}	$V_{GS}=0V, I_D=-250\mu A$	-40	-	-	V
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=-250\mu A$	-2	-3.0	-4	
Drain-Source On-State Resistance	$R_{DS(on)}$	$V_{GS}=-10V, I_D=-20A$	-	6.5	7.0	m Ω
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS}=-40V, V_{GS}=0V$	-	-	-1	μA
Gate-Source Leakage Current	I_{GSS}	$V_{GS}=\pm 20V, V_{DS}=0V$	-	-	± 100	nA
Dynamic (Note 6)						
Total Gate Charge	Q_g	$V_{DS}=-32V, I_D=-10A,$ $V_{GS}=-10V$ (Note 2,3)	-	128	-	nC
Gate-Source Charge	Q_{gs}		-	14.4	-	
Gate-Drain Charge	Q_{gd}		-	28.9	-	
Input Capacitance	C_{iss}	$V_{DS}=-25V, V_{GS}=0V,$ $f=1\text{MHz}$	-	7040	-	pF
Output Capacitance	C_{oss}		-	610	-	
Reverse Transfer Capacitance	C_{rss}		-	326	-	
Gate resistance	R_g	$f=1\text{MHz}$	-	3.7	-	Ω
Turn-On Delay Time	$t_{d(on)}$	$V_{DS}=-32V, I_D=-1A,$ $V_{GS}=-10V, R_G=6\Omega$ (Note 2,3)	-	12	-	ns
Turn-On Rise Time	t_r		-	18.6	-	
Turn-Off Delay Time	$t_{d(off)}$		-	241	-	
Turn-Off Fall Time	t_f		-	91	-	
Drain-Source Diode						
Maximum Continuous Drain-Source Diode Forward Current	I_S	---	-	-	-100	A
Diode Forward Voltage	V_{SD}	$I_S=-1A, V_{GS}=0V$	-	-0.66	-1	V

NOTES :

- Pulse width $\leq 300\mu s$, Duty cycle $\leq 2\%$.
- Essentially independent of operating temperature typical characteristics.
- Repetitive rating, pulse width limited by junction temperature $T_{J(MAX)}=150^{\circ}\text{C}$. Ratings are based on low frequency and duty cycles to keep initial $T_J=25^{\circ}\text{C}$.
- The maximum current rating is package limited.
- $R_{\theta JA}$ is the sum of the junction-to-case and case-to-ambient thermal resistance where the case thermal reference is defined as the solder mounting surface of the drain pins. Mounted on a 1 inch² with 2oz. square pad of copper.
- The test condition is $L=0.1\text{mH}$, $I_{AS}=-70A$, $V_{DD}=-25V$, $V_{GS}=-10V$, Starting $T_J=25^{\circ}\text{C}$.
- Guaranteed by design, not subject to production testing.

TYPICAL CHARACTERISTIC CURVES



TYPICAL CHARACTERISTIC CURVES

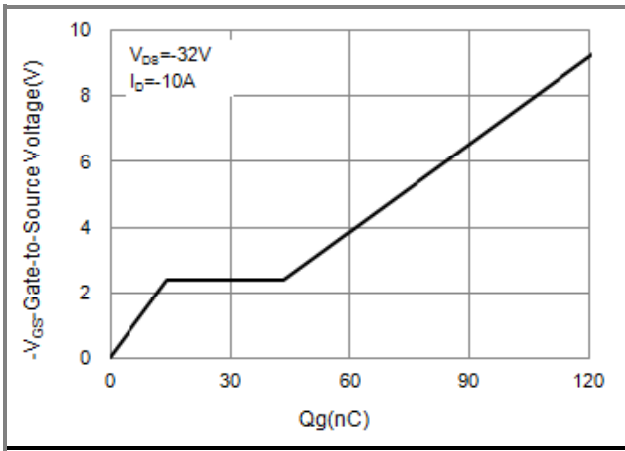


Fig.7 Gate-Charge Characteristics

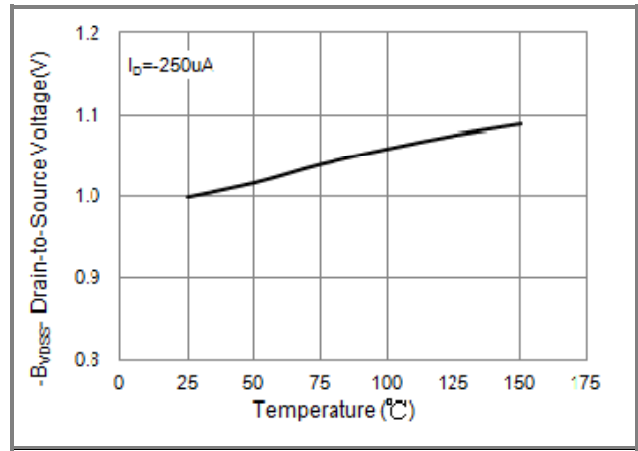


Fig.8 Breakdown Voltage Variation vs. Temperature

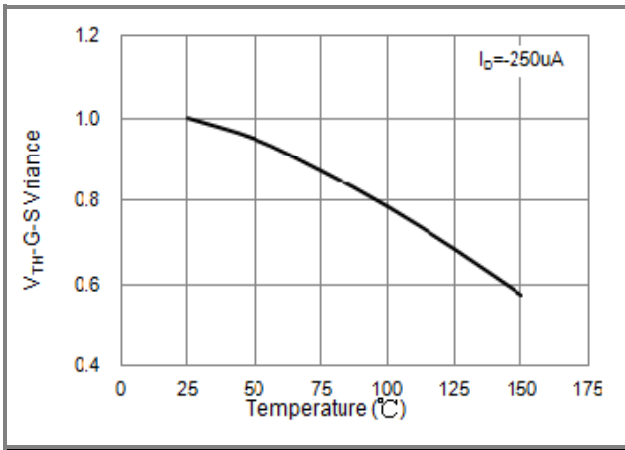


Fig.9 Threshold Voltage Variation with Temperature

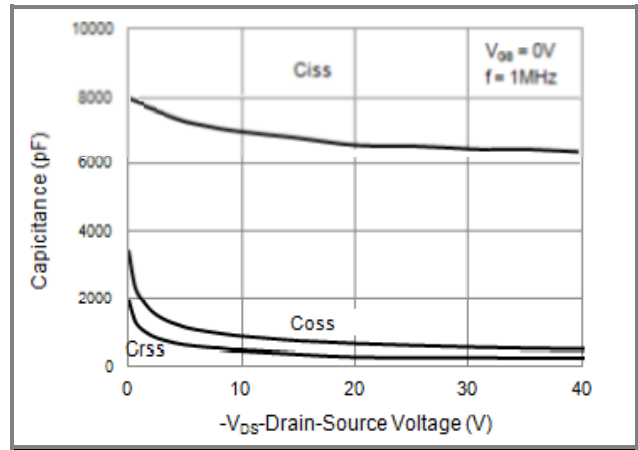


Fig.10 Capacitance vs. Drain-Source Voltage

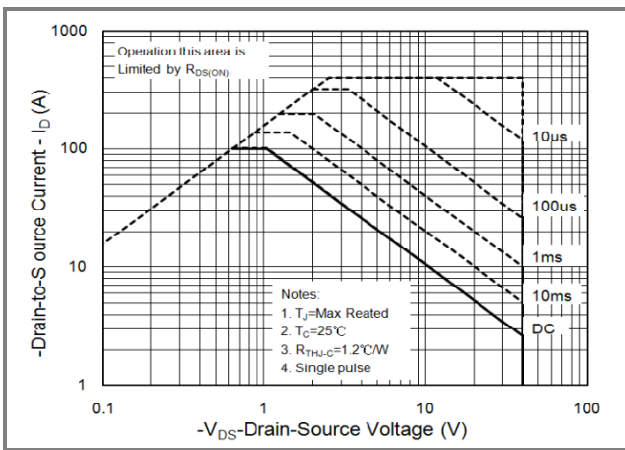


Fig.11 Maximum Safe Operating Area

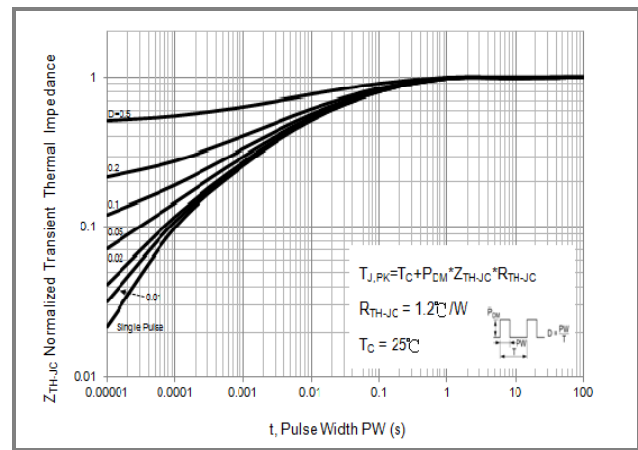
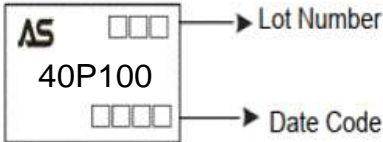
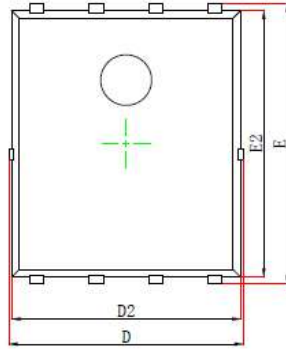
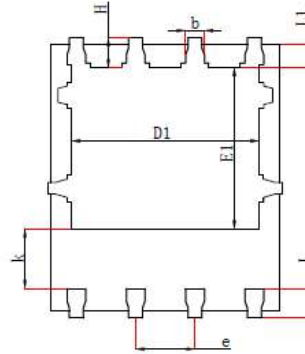
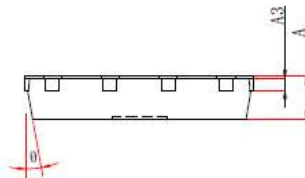


Fig.12 Normalized Transient Thermal Impedance

Ordering and Marking Information

Ordering Device No.	Marking	Package	Packing	Quantity
ASDM40P100Q-R	40P100	PDFN5*6-8	Tape&Reel	4000/Reel

PACKAGE	MARKING
PDFN5*6-8	 <p>AS □□ → Lot Number 40P100 □□□□ → Date Code</p>

DFN5*6- 8 PACKAGE IN FORMATION

Top View
 [顶视图]

Bottom View
 [背视图]

Side View
 [侧视图]

Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	0.900	1.000	0.035	0.039
A3	0.254REF.		0.010REF.	
D	4.944	5.096	0.195	0.201
E	5.974	6.126	0.235	0.241
D1	3.910	4.110	0.154	0.162
E1	3.375	3.575	0.133	0.141
D2	4.824	4.976	0.190	0.196
E2	5.674	5.826	0.223	0.229
k	1.190	1.390	0.047	0.055
b	0.350	0.450	0.014	0.018
e	1.270TYP.		0.050TYP.	
L	0.559	0.711	0.022	0.028
L1	0.424	0.576	0.017	0.023
H	0.574	0.726	0.023	0.029
θ	10°	12°	10°	12°

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