



Features

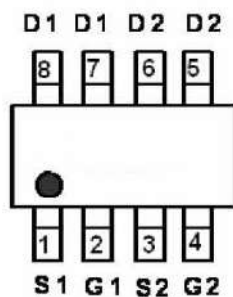
- Dual N-Channel, 5V Logic Level Control
- Enhancement mode
- Fast Switching
- High Effective

Application

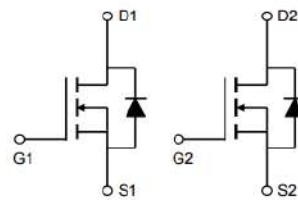
- Power Management in Inverter System
- Synchronous Rectification

Product Summary

V_{DS}	60	V
$R_{DS(on), Typ} @ V_{GS} = 10V$	28	m Ω
I_D	5	A



SOP8



Dual N-Channel MOSFET

Absolute Maximum Ratings

Symbol	Parameter	Rating	Unit
Common Ratings ($T_A = 25^\circ\text{C}$ Unless Otherwise Noted)			
V_{DSS}	Drain-Source Voltage	60	V
V_{GSS}	Gate-Source Voltage	± 20	
T_J	Maximum Junction Temperature	150	$^\circ\text{C}$
T_{STG}	Storage Temperature Range	-55 to 150	$^\circ\text{C}$
I_S	Diode Continuous Forward Current	$T_A = 25^\circ\text{C}$ 5.0	A
Mounted on Large Heat Sink			
$I_{DP}^{(1)}$	300 μs Pulse Drain Current Tested	$T_A = 25^\circ\text{C}$ 20	A
$I_D^{(2)}$	Continuous Drain Current ($V_{GS} = 10V$)	$T_A = 25^\circ\text{C}$ 5.0	A
		$T_A = 70^\circ\text{C}$ 7.0	
P_D	Maximum Power Dissipation	$T_A = 25^\circ\text{C}$ 3	W
		$T_A = 70^\circ\text{C}$ 1.6	
$R_{\theta JC}$	Thermal Resistance-Junction to Case	36	$^\circ\text{C/W}$
$R_{\theta JA}^{(3)}$	Thermal Resistance-Junction to Ambient	85	$^\circ\text{C/W}$
Drain-Source Avalanche Ratings			
$E_{AS}^{(4)}$	Avalanche Energy, Single Pulsed	-	mJ

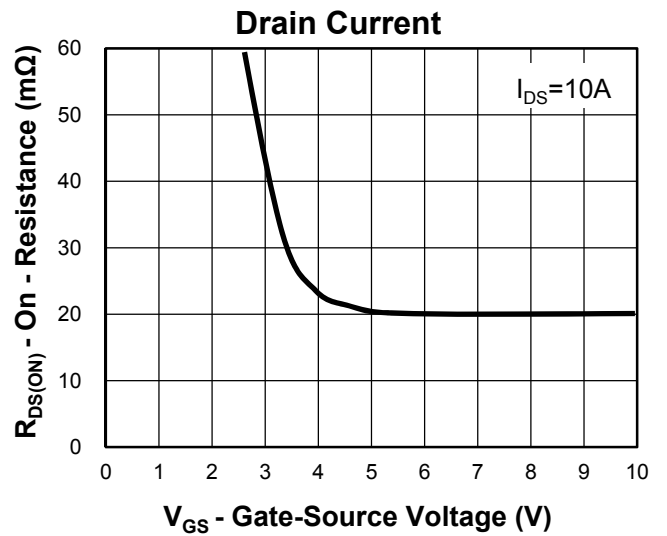
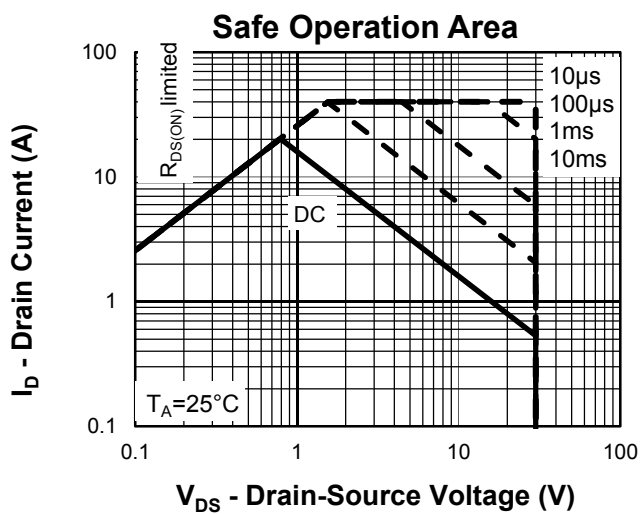
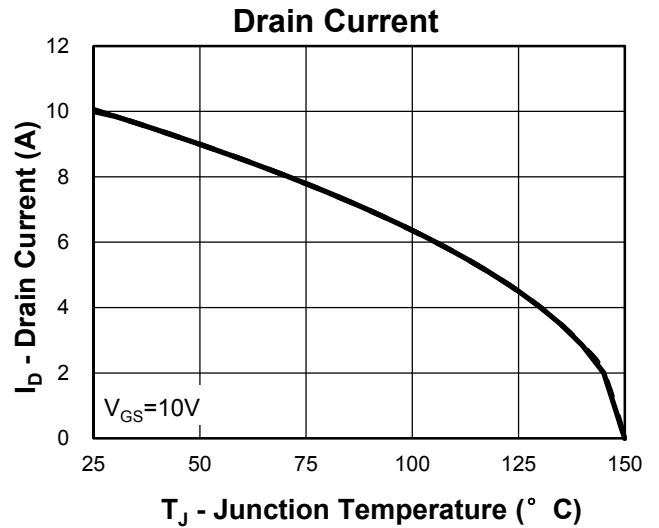
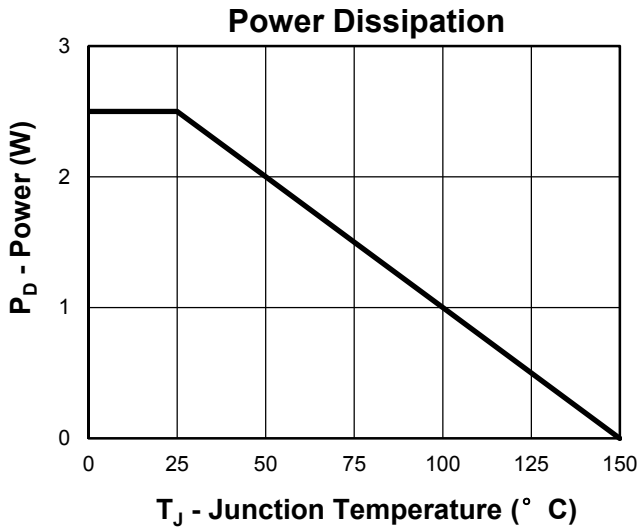
**Electrical Characteristics** ($T_A=25^\circ\text{C}$ Unless Otherwise Noted)

Symbol	Parameter	Test Condition	Min.	Typ.	Max.	Unit
Static Characteristics						
BV_{DSS}	Drain-Source Breakdown Voltage	$V_{GS}=0V, I_{DS}=250\mu A$	60			V
I_{DSS}	Zero Gate Voltage Drain Current	$V_{DS}=60V, V_{GS}=0V$			1	μA
		$T_J=125^\circ\text{C}$			30	
$V_{GS(th)}$	Gate Threshold Voltage	$V_{DS}=V_{GS}, I_{DS}=250\mu A$	1	1.6	2.5	V
I_{GSS}	Gate Leakage Current	$V_{GS}=\pm 20V, V_{DS}=0V$			± 100	nA
$R_{DS(ON)}^{(5)}$	Drain-Source On-state Resistance	$V_{GS}=10V, I_{DS}=8.0A$		28	30	$m\Omega$
		$V_{GS}=4.5V, I_{DS}=6A$		31	36	$m\Omega$
Diode Characteristics						
$V_{SD}^{(5)}$	Diode Forward Voltage	$I_{SD}=10A, V_{GS}=0V$			1	V
t_{rr}	Reverse Recovery Time	$I_{SD}=10A, di_{SD}/dt=100A/\mu s$		25		ns
Q_{rr}	Reverse Recovery Charge			14		nC
Dynamic Characteristics⁽⁶⁾						
R_G	Gate Resistance	$V_{GS}=0V, V_{DS}=0V, F=1\text{MHz}$		1		Ω
C_{iss}	Input Capacitance	$V_{GS}=0V, V_{DS}=30V, \text{Frequency}=1.0\text{MHz}$		1040		pF
C_{oss}	Output Capacitance			120		
C_{rss}	Reverse Transfer Capacitance			53		
$t_{d(ON)}$	Turn-on Delay Time	$V_{DD}=30V, I_{DS}=8.0A, V_{GEN}=10V, R_G=3\Omega$		10		ns
t_r	Turn-on Rise Time			45		
$t_{d(OFF)}$	Turn-off Delay Time			24		
t_f	Turn-off Fall Time			17		
Gate Charge Characteristics⁽⁶⁾						
Q_g	Total Gate Charge	$V_{DS}=48V, V_{GS}=10V, I_{DS}=8.0A$		25		nC
Q_{gs}	Gate-Source Charge			4.5		
Q_{gd}	Gate-Drain Charge			6.5		

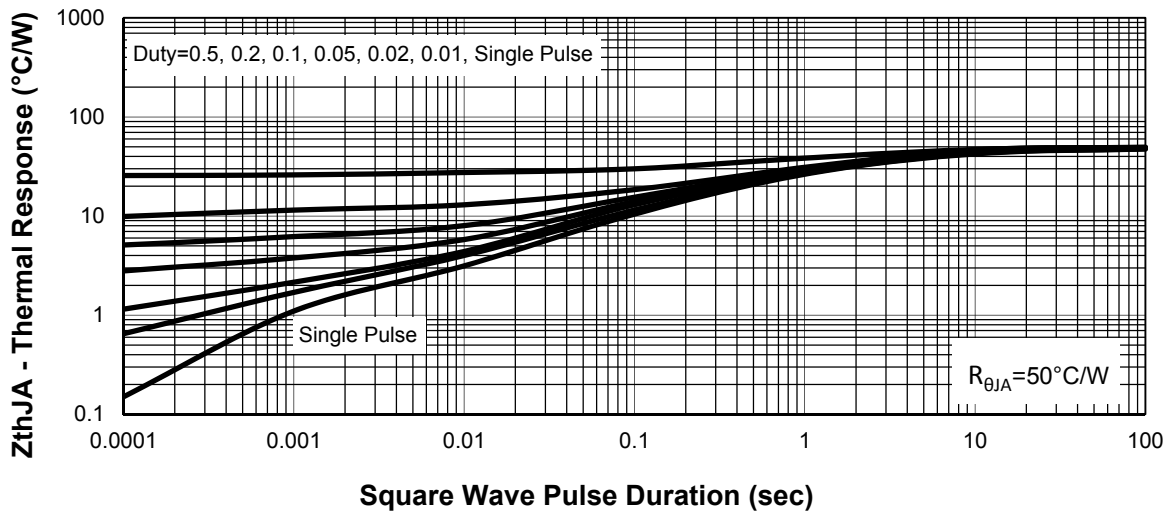
Notes:

- ①Pulse width limited by safe operating area.
- ②Calculated continuous current based on maximum allowable junction temperature.
- ③When mounted on 1 inch square copper board, $t \leq 10\text{sec}$. The value in any given application depends on the user's specific board design.
- ④Limited by T_{Jmax} . Starting $T_J = 25^\circ\text{C}$.
- ⑤Pulse test; Pulse width $\leq 300\mu s$, duty cycle $\leq 2\%$.
- ⑥Guaranteed by design, not subject to production testing.

Typical Characteristics



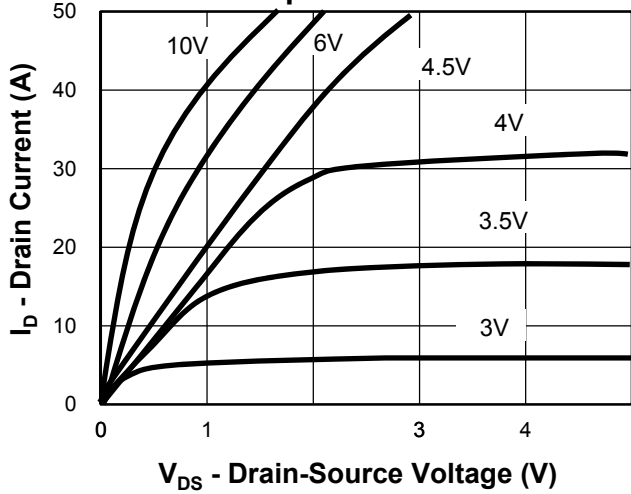
Thermal Transient Impedance



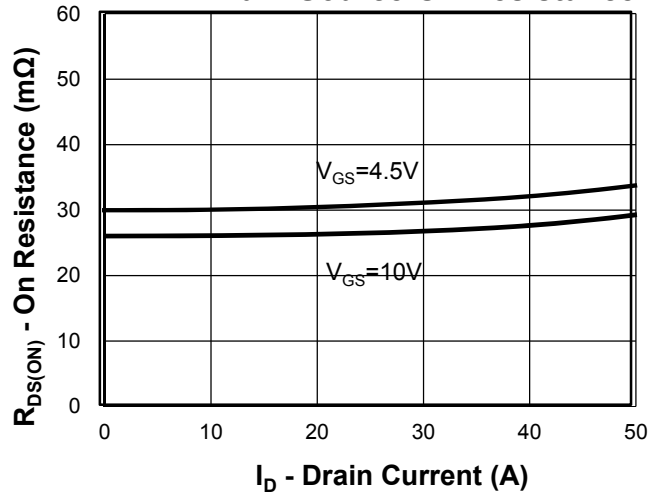


Typical Characteristics

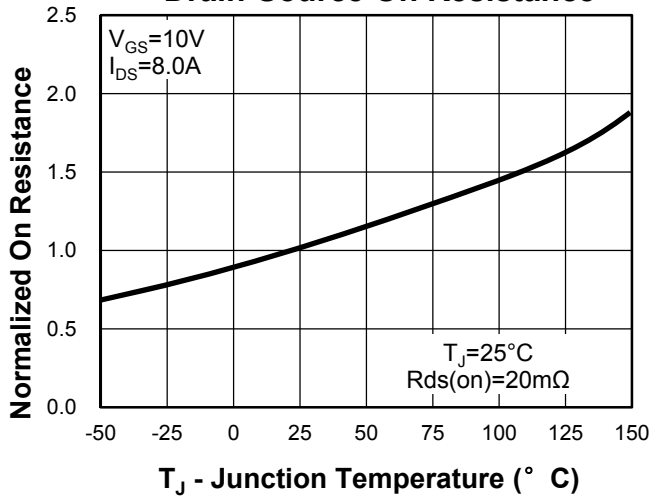
Output Characteristics



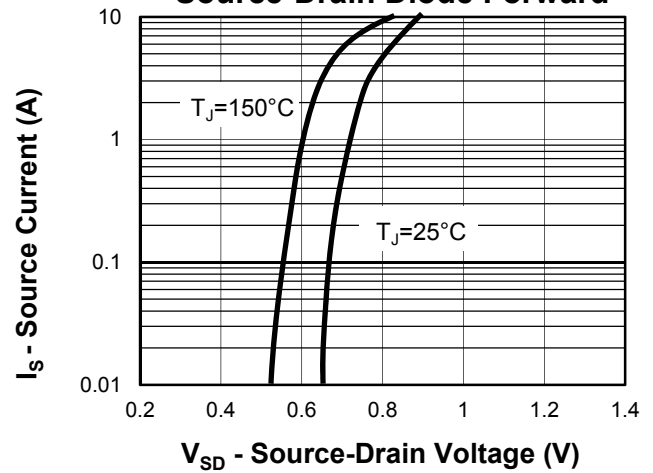
Drain-Source On Resistance



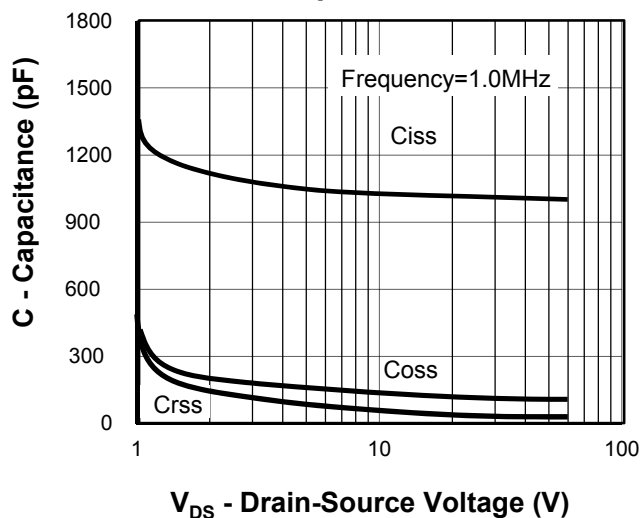
Drain-Source On Resistance



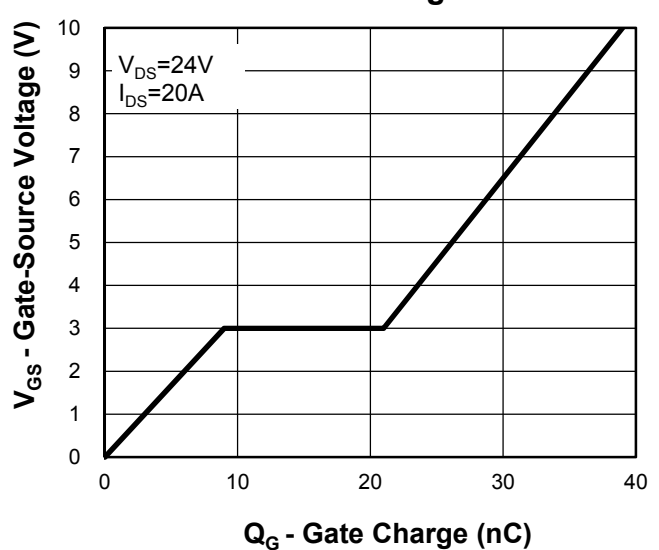
Source-Drain Diode Forward



Capacitance

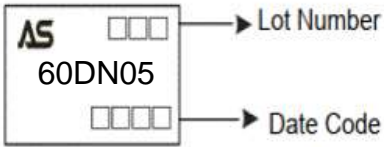


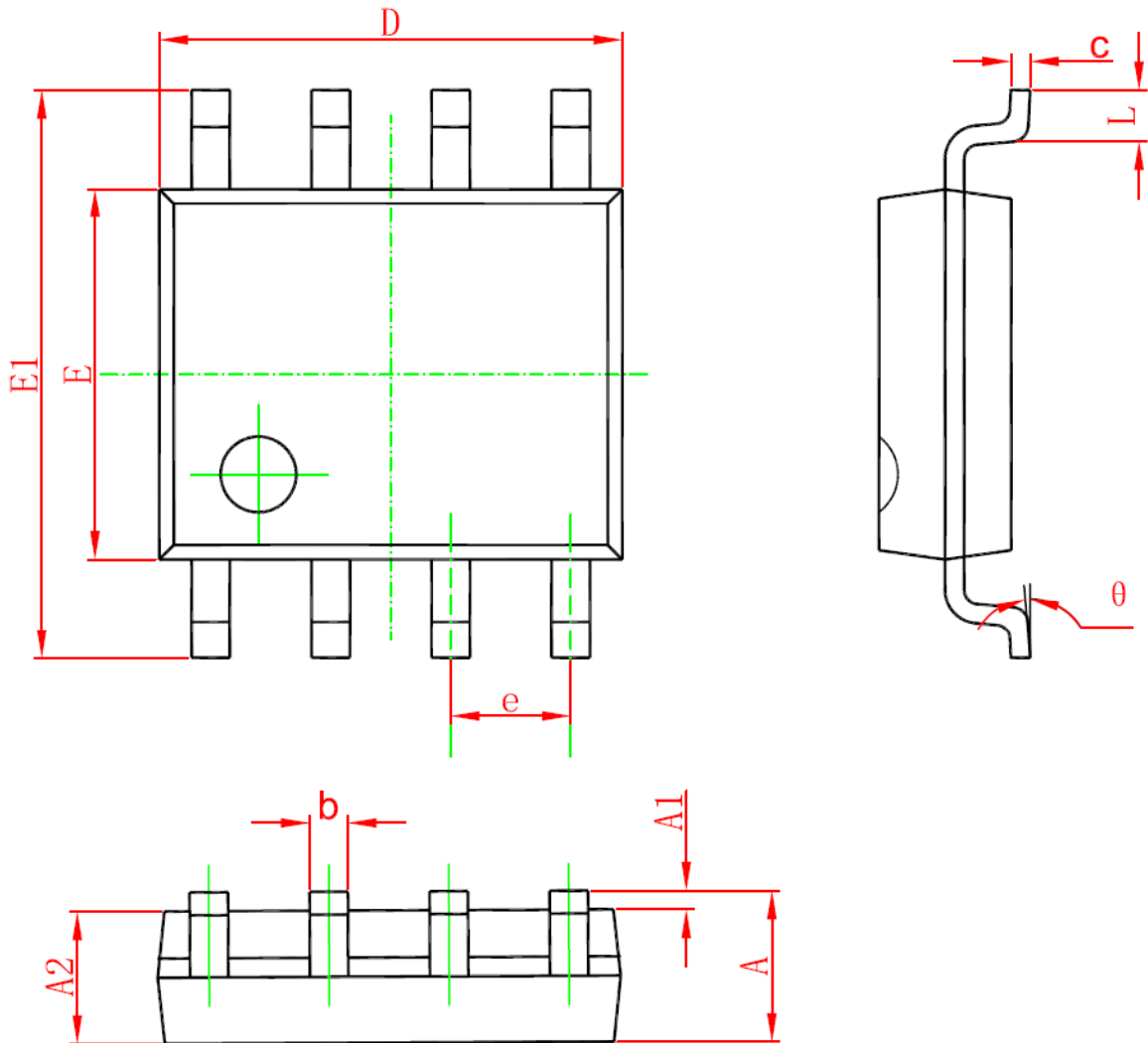
Gate Charge



Ordering and Marking Information

Ordering Device No.	Marking	Package	Packing	Quantity
ASDM60DN05S-R	60DN05	SOP-8	Tape&Reel	4000/Reel

PACKAGE	MARKING
SOP-8	 <p>AS □□ → Lot Number 60DN05 □□□□ → Date Code</p>

**SOP-8 PACKAGE IN FORMATION**

Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	1.350	1.750	0.053	0.069
A1	0.100	0.250	0.004	0.010
A2	1.350	1.550	0.053	0.061
b	0.330	0.510	0.013	0.020
c	0.170	0.250	0.006	0.010
D	4.700	5.100	0.185	0.200
E	3.800	4.000	0.150	0.157
E1	5.800	6.200	0.228	0.244
e	1.270 (BSC)		0.050 (BSC)	
L	0.400	1.270	0.016	0.050
θ	0°	8°	0°	8°

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