

60V N-Channel Enhancement Mode MOSFET

VDS= 60V

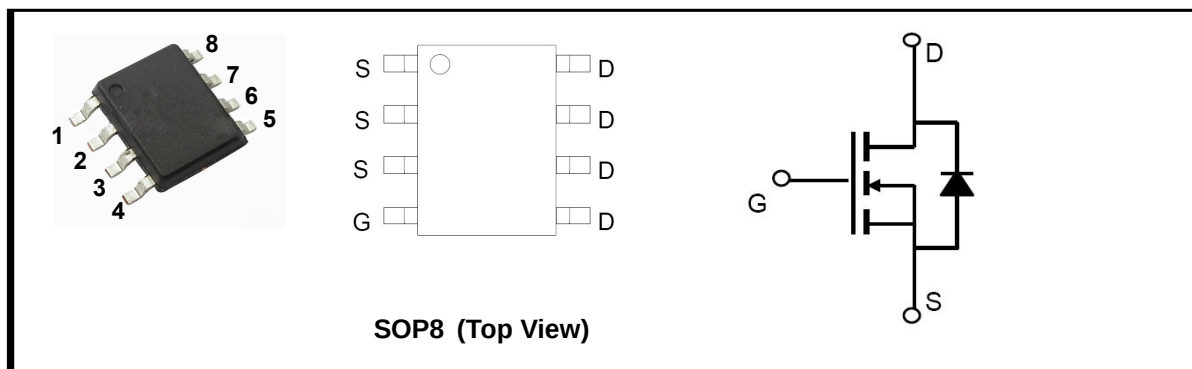
RDS(ON), Vgs@ 10.0V, Ids@10.0A<15.0mΩ

RDS(ON), Vgs@ 4.5V, Ids@ 9.0A < 19.0mΩ

Features

Advanced trench process technology

High Density Cell Design For Ultra Low On-Resistance



Maximum Ratings and Thermal Characteristics (TA = 25°C unless otherwise noted)

Parameter		Symbol	Rating	Unit
Drain-Source Voltage		V _{DS}	60	V
Gate-Source Voltage		V _{GS}	±20	V
Continuous Drain Current	T _A =25℃	I _D	10	A
	T _A =70℃		8.0	A
Pulsed Drain Current ^C		I _{DM}	40	A
Avalanche Current ^C		I _{AS}	20	A
Avalanche energy L=0.1mH ^C		E _{AS}	20	mJ
VDS Spike	10 μ S	V _{SPIKE}	72	V
Power Dissipation ^B	T _A =25℃	P _D	3.1	W
	T _A =70℃		2.0	W
Maximum Junction-to-Ambient ^A t≤10S		R _{θJA}	40	℃/ W
Maximum Junction-to-Ambient ^{AD} Steady-State			75	℃/ W
Maximum Junction-to Lead Steady-State		R _{θJL}	24	℃/ W
Operating and Junction Temperature Range		T _j T _{stg}	-55~+150	℃

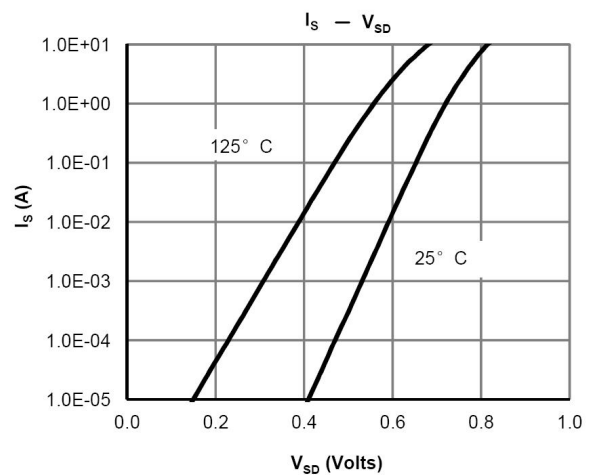
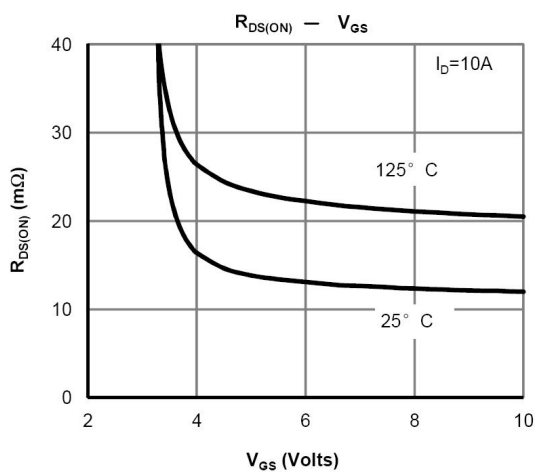
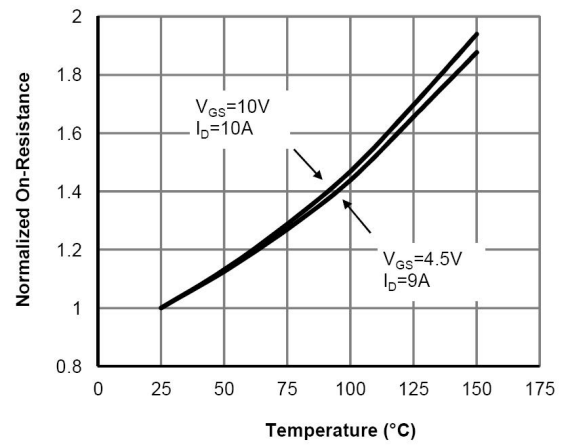
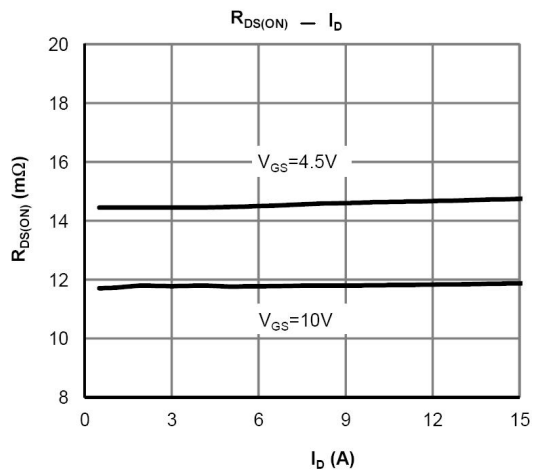
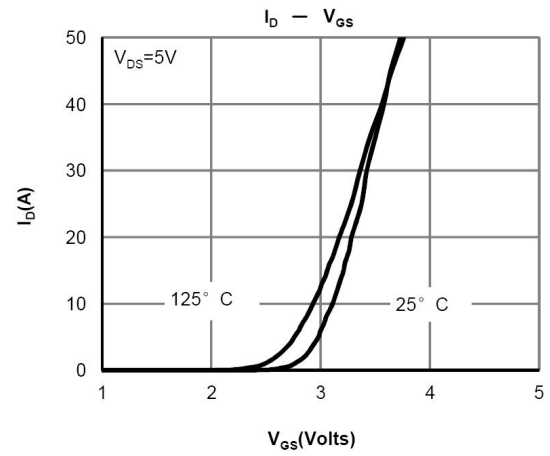
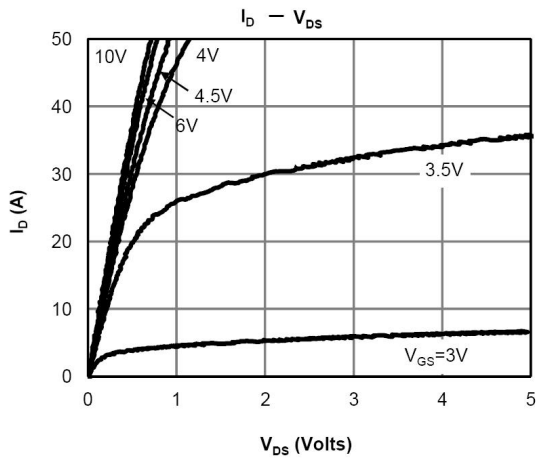
Model	Marking	Package	shipping
M4266SC	4266	SOP-8	4000/Tape&Reel

CHANNEL Electrical Characteristics(Ta=25°C)

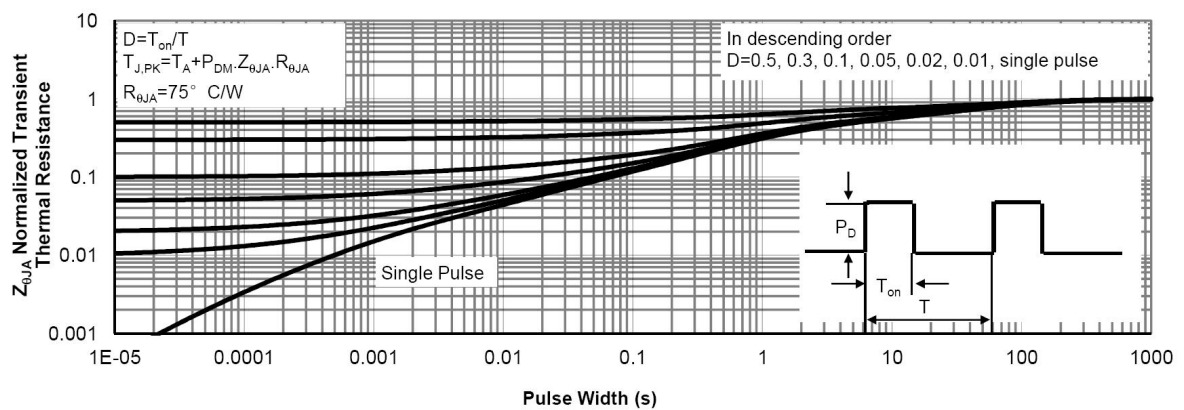
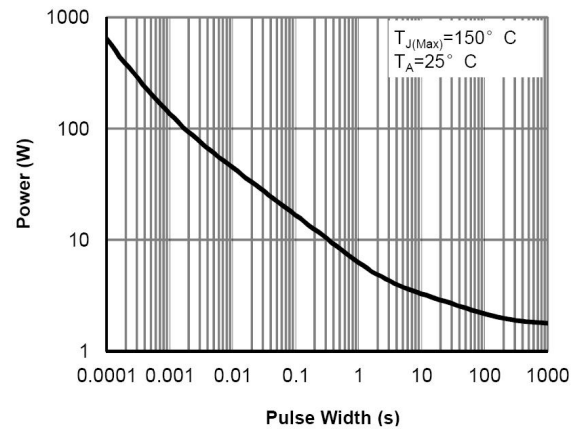
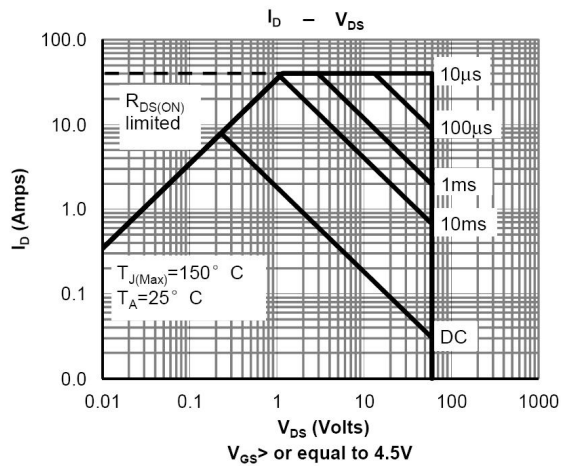
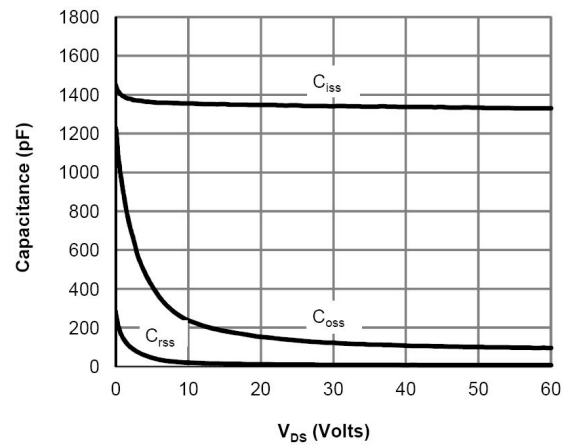
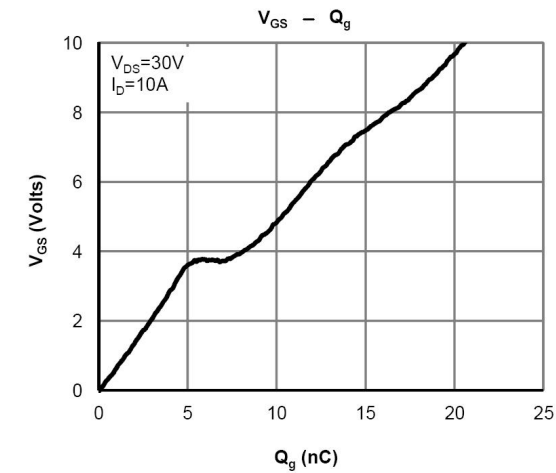
Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Drain-Source Breakdown Voltage	BV_{DSS}	$V_{GS}=0V$ $I_D=250\mu A$	60			V
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS}=60V$ $V_{GS}=0V$			1.0	μA
		$V_{DS}=60V$ $V_{GS}=0V$ $T_J=55^\circ C$			5.0	μA
Gate-Body Leakage Current Forward	I_{GSS}	$V_{GS}=\pm 20V$ $V_{DS}=0V$			± 100	nA
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}$ $I_D=250\mu A$	1.0	1.8	2.5	V
Static Drain-Source On-Resistance	$R_{DS(on)}$	$V_{GS}=10V$ $I_D=10A$		12	15	m Ω
		$V_{GS}=10V$ $I_D=10A$ $T_J=125^\circ C$		20.5	25	
		$V_{GS}=4.5V$ $I_D=9.0A$		15	19	
Forward Transconductance	g_{FS}	$V_{DS}=5.0V$ $I_D=10A$		35		S
Diode Forward Voltage	V_{SD}	$I_S=10A$ $V_{GS}=0V$		0.72	1.2	V
Maximum Continuous Drain-Source Diode Forward Current	I_S				4.0	A
Input Capacitance	C_{iss}	$V_{DS}=30V$ $V_{GS}=0V$ $f=1.0MHz$		1340		pF
Output Capacitance	C_{oss}			123		
Reverse Transfer Capacitance	C_{rss}			10		
Gate resistance	R_g	$f=1.0MHz$	0.7	1.5	2.3	Ω
Total Gate Charge(10V)	Q_g	$V_{DD}=10V$ $I_D=10A$ $V_{DS}=30V$		21	30	nC
Total Gate Charge(4.5V)				9.0	15	
Gate-Source Charge	Q_{gs}			4.7		
Gate-Drain Charge	Q_{gd}			2.6		
Turn-On Delay Time	$t_{d(on)}$	$V_{DD}=10V$ $V_{DS}=30V$ $R_L=3.0\Omega$ $R_{GEN}=3.0\Omega$		6.0		ns
Turn-On Rise Time	t_r			2.5		
Turn-Off Delay Time	$t_{d(off)}$			22		
Turn-Off Fall Time	t_f			2.5		
Body Diode Reverse Recovery Time	t_{rr}	$I_F=10A$ $dI/dt=500A/\mu s$		15.5		ns
Body Diode Reverse Recovery Charge	Q_{rr}			55.5		nC

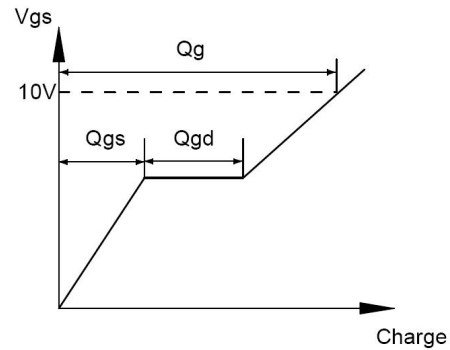
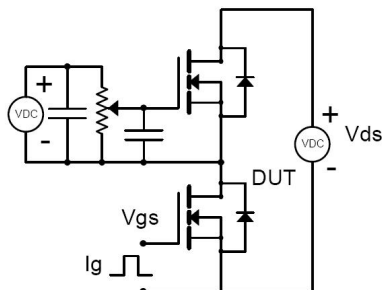
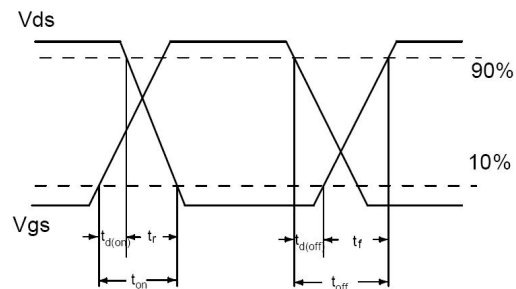
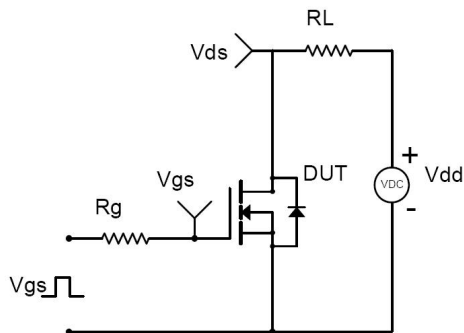
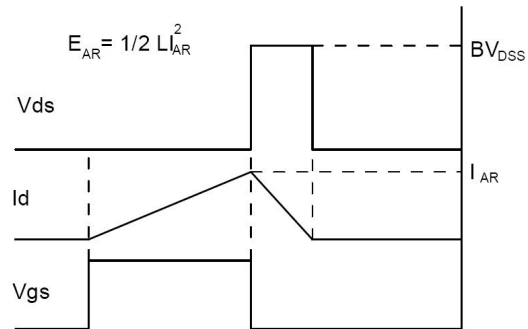
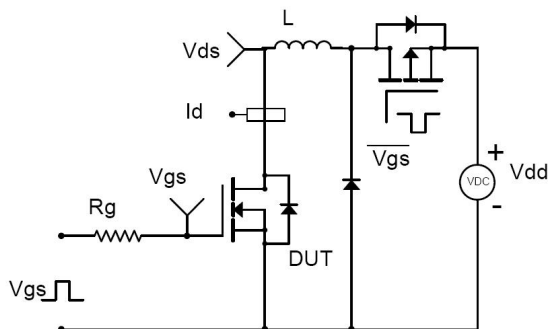
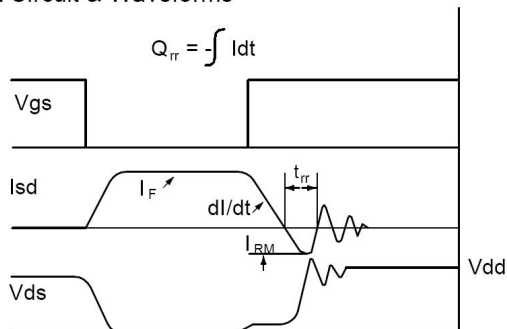
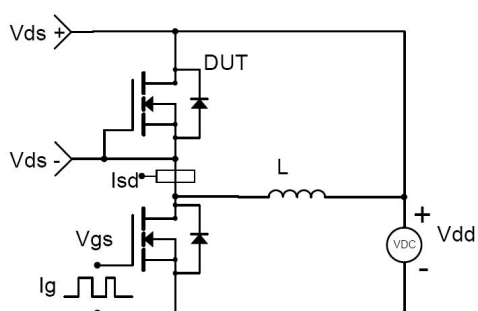
Notes:

- The value of $R_{\theta JA}$ is measured with the device mounted on 1in2 FR-4 board with 2oz. Copper, in a still air environment with $T_A=25^\circ C$. The value in any given application depends on the user's specific board design.
- The power dissipation P_D is based on $T_{J(MAX)}=150^\circ C$, using $\leq 10s$ junction-to-ambient thermal resistance.
- Repetitive rating, pulse width limited by junction temperature $T_{J(MAX)}=150^\circ C$. Ratings are based on low frequency and duty cycles to keep initial $T_J=25^\circ C$.
- The $R_{\theta JA}$ is the sum of the thermal impedance from junction to lead $R_{\theta JL}$ and lead to ambient.
- The static characteristics in Figures 1 to 6 are obtained using $<300\mu s$ pulses, duty cycle 0.5% max.
- These curves are based on the junction-to-ambient thermal impedance which is measured with the device mounted on 1in2 FR-4 board with 2oz. Copper, assuming a maximum junction temperature of $T_{J(MAX)}=150^\circ C$. The SOA curve provides a single pulse rating.

N-CHANNEL Electrical Characteristic Curve


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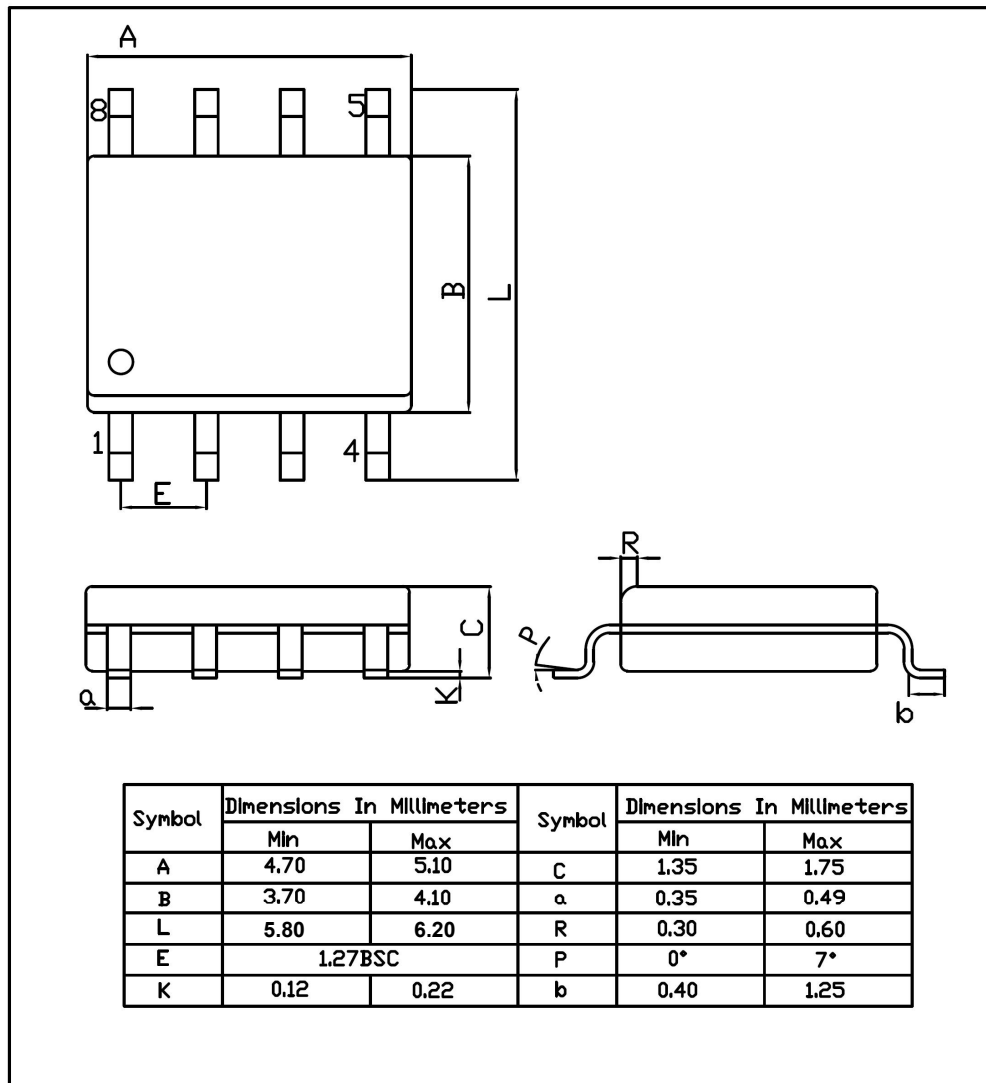
Test Circuit & Waveform
Gate Charge Test Circuit & Waveform

Resistive Switching Test Circuit & Waveforms

Unclamped Inductive Switching (UIS) Test Circuit & Waveforms

Diode Recovery Test Circuit & Waveforms


Dimension outline

Unit:mm

SOP-8

Unit:mm



Suggested Pad Layout UNIT: mm

