

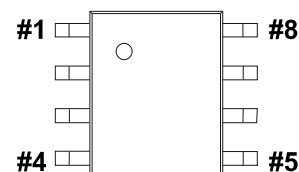
■ P-Channel MOSFET

■ Feature

$V_{DS} (V) = -30V$
 $I_D = -12 A (V_{GS} = -20V)$
 $R_{DS(ON)} < 13m\Omega (V_{GS} = -20V)$
 $R_{DS(ON)} < 14m\Omega (V_{GS} = -10V)$

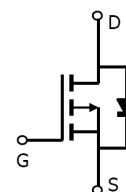
■ Applications

Power Management in Notebook computer,
 Portable Equipment and Battery powered systems.



PIN1:S PIN5:D
 PIN2:S PIN6:D
 PIN3:S PIN7:D
 PIN4:G PIN8:D

■ Simplified outline(SOP-8)



■ Absolute Maximum Ratings $T_a = 25^\circ C$

Parameter	Symbol	Rating	Unit
Drain-Source Voltage	V_{DSS}	-30	V
Gate-Source Voltage	V_{GSS}	± 20	V
Continuous Drain Current ^A	$I_D (T_a=25^\circ C)$	-12	A
Continuous Drain Current ^A	$I_D (T_a=70^\circ C)$	-10	A
Pulsed Drain Current ^B	I_{DM}	-60	A
Power Dissipation for Single Operation ^A	$P_D (T_a=25^\circ C)$	3	W
Power Dissipation for Single Operation ^A	$P_D (T_a=100^\circ C)$	2.1	W
Maximum Junction Temperature	T_j	150	$^\circ C$
Storage Temperature Range	T_{stg}	-55 ~ 150	$^\circ C$
Thermal Resistance-Junction to Ambient ^A	$R_{\theta JA} (t \leq 10s)$	40	$^\circ C/W$
Thermal Resistance-Junction to Ambient ^A	$R_{\theta JA}$	75	$^\circ C/W$
Maximum Junction-to-Lead ^C	$R_{\theta JL}$	30	$^\circ C/W$

Note:

A: 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 current rating is based on the $t \leq 10s$ thermal resistance rating.

B: Repetitive rating, pulse width limited by junction temperature.

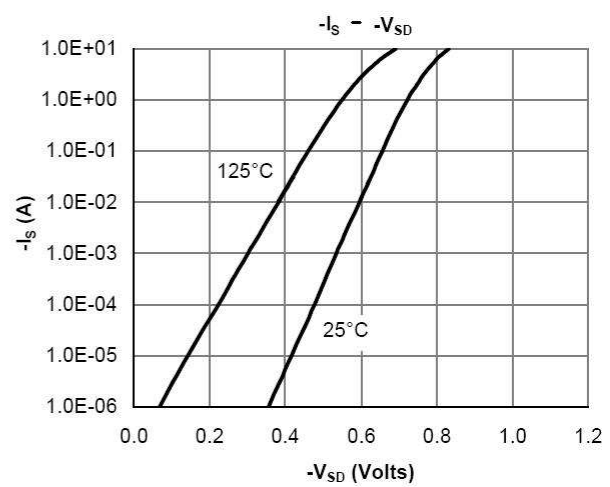
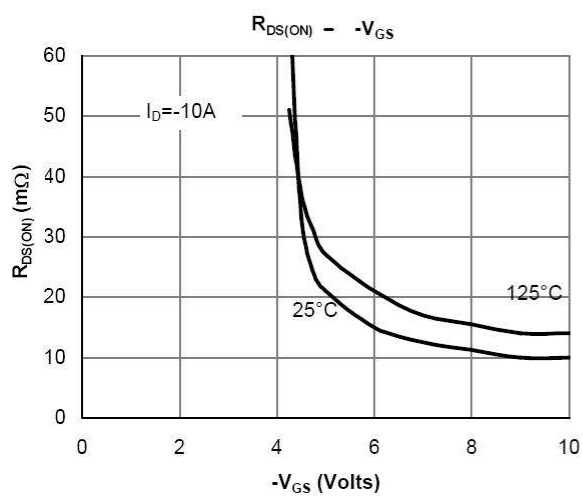
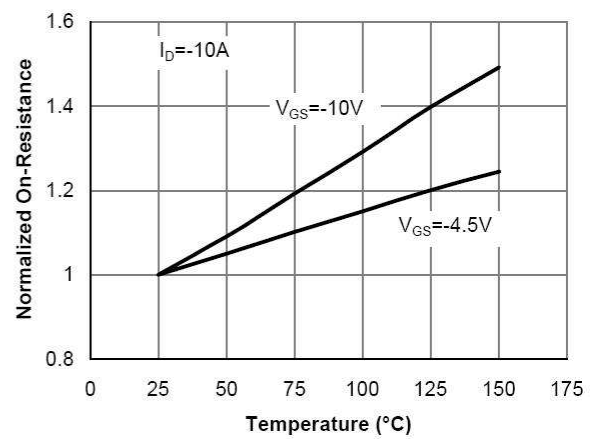
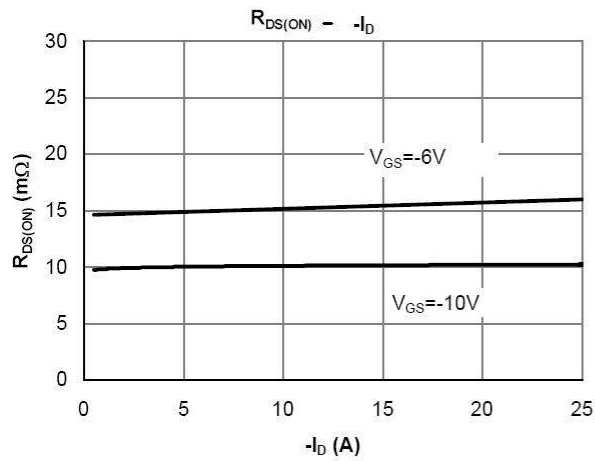
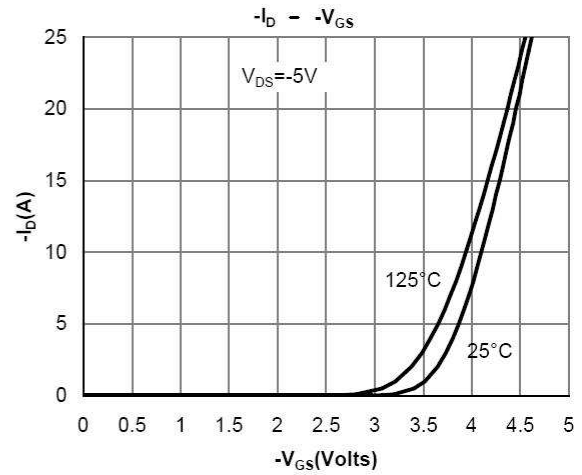
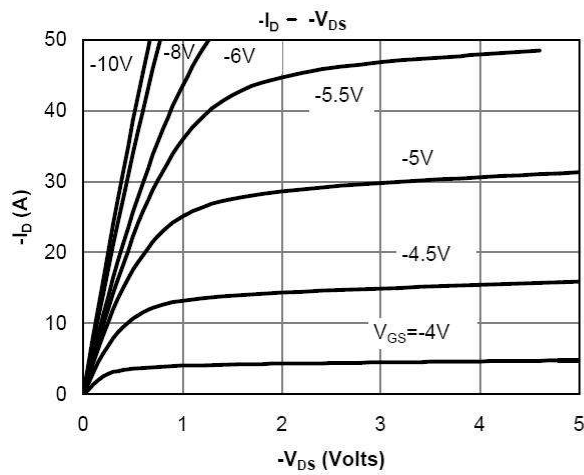
C: The $R_{\theta JA}$ is the sum of the thermal impedance from junction to lead $R_{\theta JL}$ and lead to ambient.

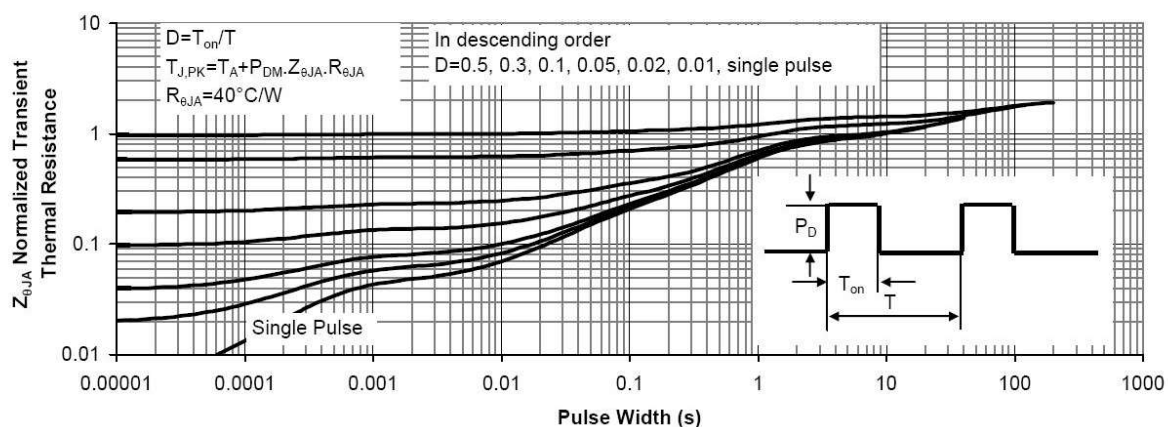
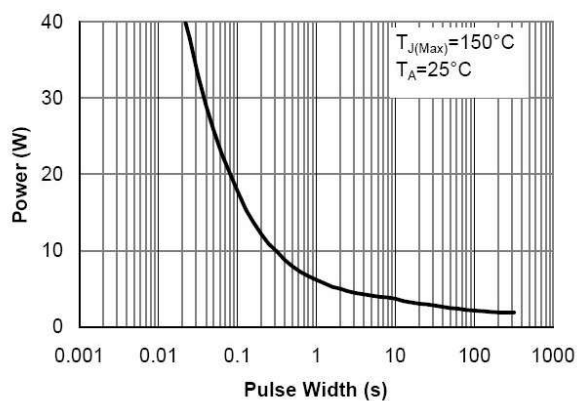
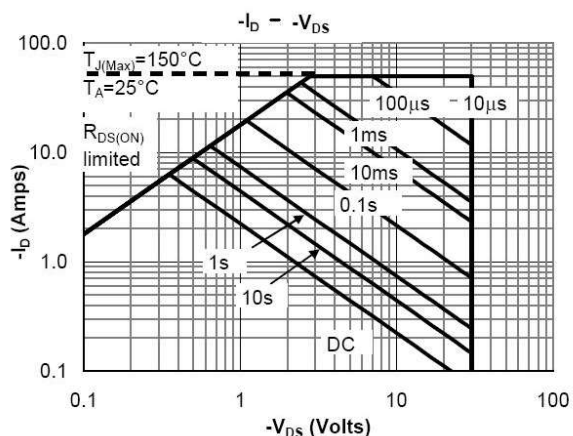
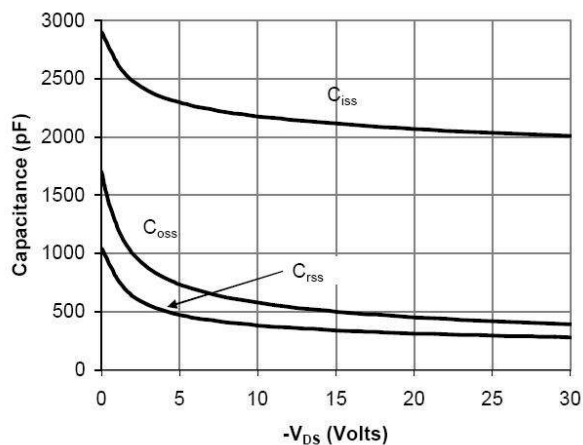
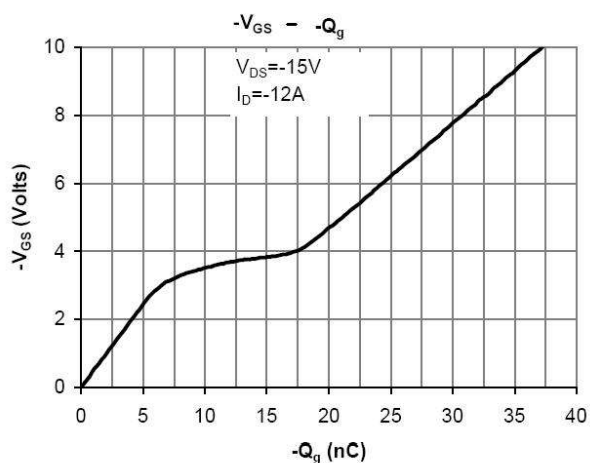
D: The static characteristics in Figures 1 to 6,12,14 are obtained using 80 μs pulses, duty cycle 0.5% max.

E: These tests are performed with the device mounted on 1 in 2 FR-4 board with 2oz. Copper, in a still air environment with $T_a = 25^\circ C$. The SOA curve provides a single pulse rating. Rev 1 : Sept 2005

■ Electrical Characteristics Ta = 25°C

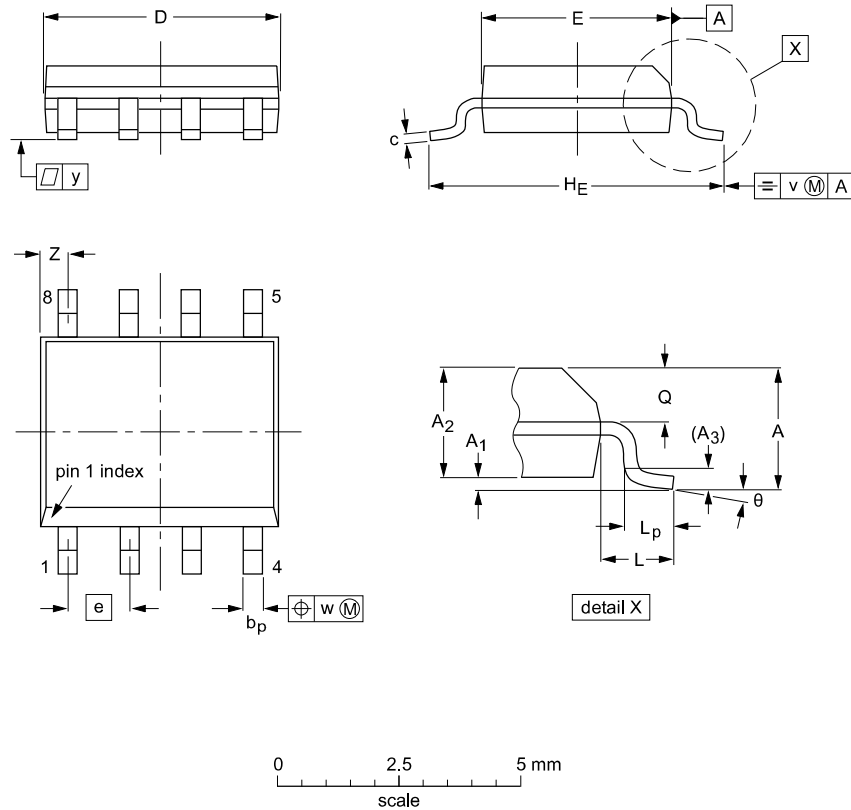
Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Drain-Source Breakdown Voltage	BV_{DSS}	$I_D = -250\mu A$ $V_{GS} = 0V$	-30			V
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS} = -24V$ $V_{GS} = 0V$			-1.0	μA
		$V_{DS} = -24V$ $V_{GS} = 0V$ $T_J = 55^\circ C$			-5.0	
Gate-Body leakage current	I_{GSS}	$V_{DS} = 0V$ $V_{GS} = \pm 20V$			± 100	nA
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}$ $I_D = -250\mu A$	-1.0	-1.5	-3.0	V
On state drain current	$I_{D(ON)}$	$V_{GS} = -10V$ $V_{DS} = -5V$	60			A
Static Drain-Source On-Resistance	$R_{DS(ON)}$	$V_{GS} = -10V$ $I_D = -10A$		11	14	m Ω
		$V_{GS} = -10V$ $I_D = -10A$ $T_J = 125^\circ C$		15	19	
		$V_{GS} = -20V$ $I_D = -10A$		10	13	
		$V_{GS} = -4.5V$ $I_D = -10A$		24		
Forward Transconductance	g_{FS}	$V_{DS} = -5V$ $I_D = -10A$		26		S
Diode Forward Voltage	V_{SD}	$I_S = -1A$ $V_{GS} = 0V$		-0.72	-1.0	V
Maximum Body-Diode Continuous Current	I_S				-4.2	A
Total Gate Charge	Q_g	$V_{GS} = -10V$ $V_{DS} = -15V$ $I_D = -12A$		37.2	45	nC
Gate-Source Charge	Q_{gs}			7		
Gate-Drain Charge	Q_{gd}			10.4		
Gate Resistance	R_g	$V_{GS} = 0V$ $f = 1MHz$ $V_{DS} = 0V$		2.0	3.0	Ω
Input Capacitance	C_{iss}	$V_{GS} = 0V$ $f = 1MHz$ $V_{DS} = -15V$		2076	2500	pF
Output Capacitance	C_{oss}			503		
Reverse Transfer Capacitance	C_{rss}			302		
Turn-on Delay Time	$t_{d(ON)}$	$V_{GS} = -10V$ $V_{DS} = -15V$ $R_L = 1.25\Omega$ $R_{GEN} = 3\Omega$		12.4		ns
Turn-on Rise Time	t_r			8.2		
Turn-off Delay Time	$t_{d(OFF)}$			25.6		
Turn-off Fall Time	t_f			12		
Body Diode Reverse Recovery Time	t_{rr}	$I_F = -12A$ $dI/dt = 100A/\mu s$		33	40	ns
Body Diode Reverse Recovery Charge	Q_{rr}	$I_F = -12A$ $dI/dt = 100A/\mu s$		23		nC





Package Outline

SOP-8



DIMENSIONS (inch dimensions are derived from the original mm dimensions)

UNIT	A _{max.}	A ₁	A ₂	A ₃	b _p	c	D ⁽¹⁾	E ⁽²⁾	e	H _E	L	L _p	Q	v	w	y	Z ⁽¹⁾	θ
mm	1.75	0.25 0.10	1.45 1.25	0.25	0.49 0.36	0.25 0.19	5.0 4.8	4.0 3.8	1.27	6.2 5.8	1.05	1.0 0.4	0.7 0.6	0.25	0.25	0.1	0.7 0.3	8° 0°
inches	0.069	0.010 0.004	0.057 0.049	0.01	0.019 0.014	0.0100 0.0075	0.20 0.19	0.16 0.15	0.05	0.244 0.228	0.041	0.039 0.016	0.028 0.024	0.01	0.01	0.004	0.028 0.012	

Summary of Packing Options

Package	Package Description	Packing Quantity	Industry Standard
SOP-8	Tape/Reel, 7" reel	3000	EIA-481-1