

FEATURES

$V_{DS}=19.5V, I_D=6A$

$R_{DS(ON)} = 16 \text{ m}\Omega @ V_{GS}=4.5V \text{ (Typ)}$

$R_{DS(ON)} = 19 \text{ m}\Omega @ V_{GS}=2.5V \text{ (Typ)}$

High Power and current handling capability

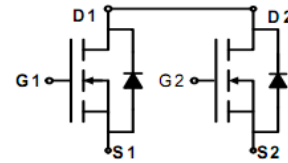
Lead free product is acquired

Surface Mount Package

- High Power and current handling capability
- Lead free product is acquired
- Surface Mount Package

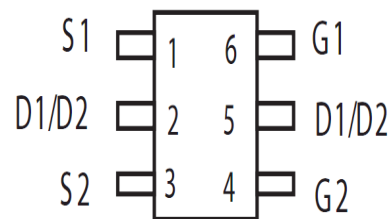
Application

- PWM applications
- Load switch
- Power management



SOT-23-6

Top View



MAXIMUM RATINGS (TA=25°C unless otherwise noted)

Symbol	Parameter	Value	Units
V_{DS}	Drain-Source voltage	19.5	V
V_{GS}	Gate-Source voltage	± 10	V
I_D	Drain current-Continuous	6	A
I_{DM}	Pulsed Drain Current(Note1)	25	A
P_D	Maximum Power Dissipation	1.25	W
T_J, T_{stg}	Operating Junction and Storage Temperature Range	-55-150	°C
$ROJA$	Thermal Resistance, Junction-to-Case(Note2)	83	°C/W

ELECTRICAL CHARACTERISTICS (Tamb=25°C unless otherwise specified)

Parameter	Symbol	Test conditions	MIN	TYP	MAX	UNIT
Off Characteristics						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	$V_{GS}=0V, I_D=250\mu A$	19.5	21		V
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS}=19.5V, V_{GS}=0V$			1	μA
Gate-body Leakage	I_{GSS}	$V_{DS}=0V, V_{GS}=\pm 10V$			± 100	nA
On Characteristics(Note3)						
Gate-Threshold Voltage	$V_{th(GS)}$	$V_{DS}=V_{GS}, I_D=250\mu A$	0.5	0.7	1.2	V
Drain-Source On-Resistance	$R_{DS(ON)}$	$V_{GS}=4.5V, I_D=4.5A$		16	22	$m\Omega$
		$V_{GS}=2.5V, I_D=3.5A$		19	27	$m\Omega$
Forward Trans conductance	g_{fs}	$V_{DS}=5V, I_D=4.5A$		10		s
Dynamic Characteristics(Note4)						

Input Capacitance	C _{iss}	V _{DS} =8V, V _{GS} =0V, f=1MHz		750		pF
Output Capacitance	C _{oss}			330		
Reverse Transfer Capacitance	C _{rss}			140		
Switching Capacitance(Note4)						
Turn-on Delay Time	t _{d(on)}	V _{DD} =10V, I _D =1A, V _{GS} =4.5V R _{GEN} =6 Ω		10	20	nS
Turn-on Rise Time	t _r			11	25	nS
Turn-off Delay Time	t _{d(off)}			35	70	nS
Turn-off Fall Time	t _f			30	60	nS
Total Gate Charge	Q _g	V _{DS} =10V, I _D =6A, V _{GS} =4.5V,		10	15	nC
Gate-Source Charge	Q _{gs}			2.3		nC
Gate-Drain Charge	Q _{gd}			1.5		nC
Drain-Source Diode Characteristics						
Diode Forward Voltage(Note3)	V _{SD}	V _{GS} =0V, I _D =1.7A		0.75	1.2	V
Diode Forward Current(Note2)	I _S				1.7	A

Notes:

- 1.Repetitive Rating:Pulse width limited by maximum junction temperature
2. Reflow soldering internal actual temperature < 250 degrees, time in high temperature < 7 s.
- 3.Pulse Test :Pulse Width <300us,Duty Cycle <2%
- 4.Guaranteed by design,not subject to production

Typical Characteristics

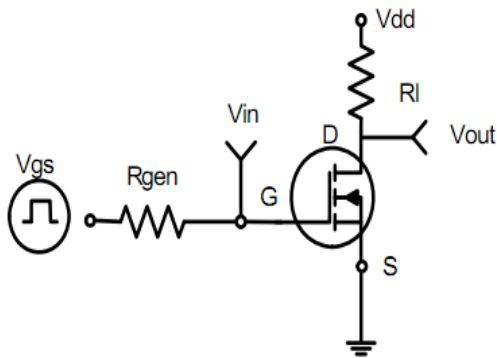


Figure 1: Switching Test Circuit

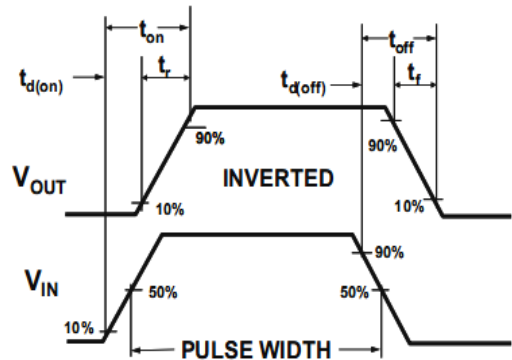


Figure 2: Switching Waveforms

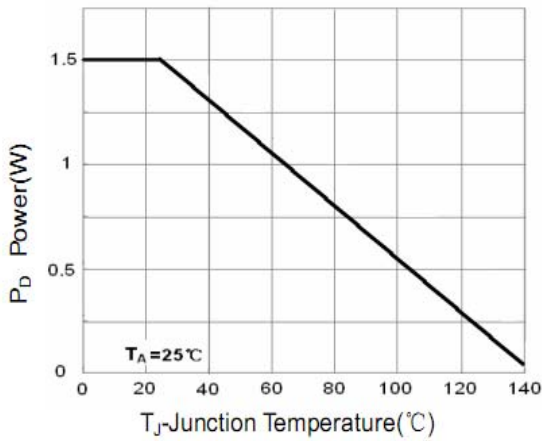


Figure 3 Power Dissipation

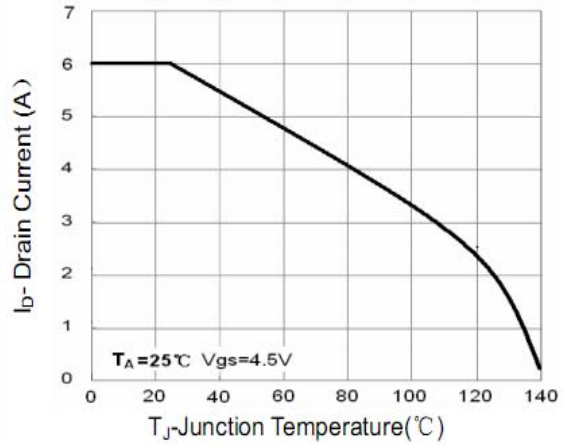


Figure 4 Drain Current

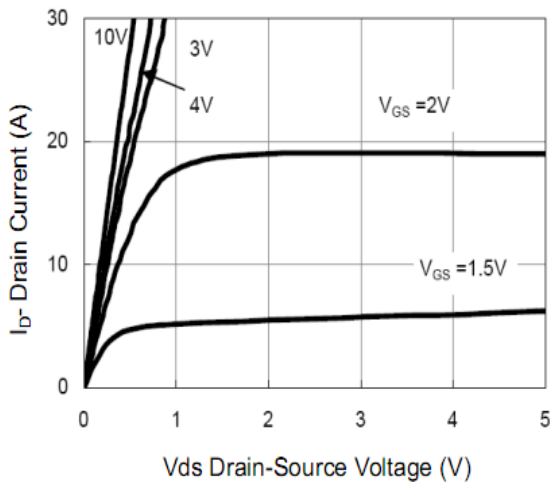


Figure 5 Output CHARACTERISTICS

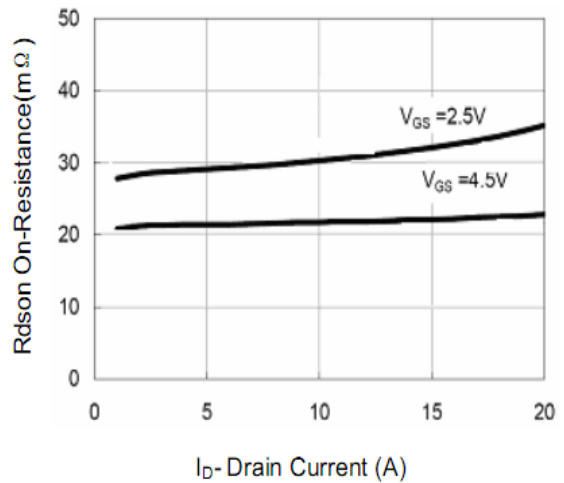


Figure 6 Drain-Source On-Resistance