

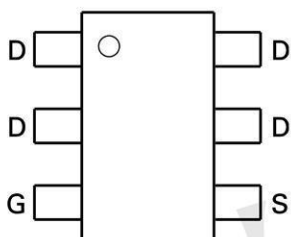
## Product Summary

- 60V/ 5A  
 $R_{DS(ON)} = 25m\Omega (Typ) @ V_{GS} = -10V$   
 $R_{DS(ON)} = 30m\Omega (Typ) @ V_{GS} = -4.5V$
- Reliable and Rugged
- Lead Free and Green Devices Available (RoHS Compliant)

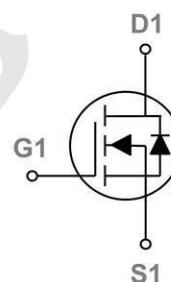
## Application

- DC-DC Converters.
- Load Switch.
- Power Management.

## Package and Pin Configuration



## Circuit diagram



## Marking:



## Absolute Maximum Ratings ( $T_A=25^{\circ}C$ unless otherwise noted)

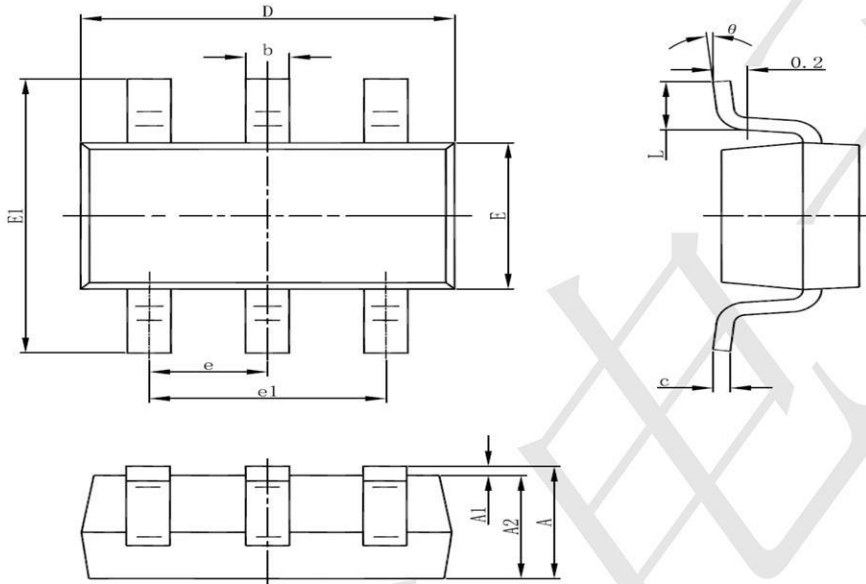
Parameter	Symbol	Value	Unit
Drain-Source Voltage	$V_{DS}$	60	V
Gate-Source Voltage	$V_{GS}$	$\pm 20$	V
Continuous Drain Current	$I_D$	5	A
Pulsed Drain Current (note 1)	$I_{DM}$	30	A
Power Dissipation	$P_D$	1.7	A
Thermal Resistance from Junction to Ambient (note 2)	$R_{\theta JA}$	106	$^{\circ}C/W$
Junction Temperature	$T_J$	150	$^{\circ}C$
Storage Temperature	$T_{STG}$	-55~+150	$^{\circ}C$

**Electrical Characteristics (T<sub>A</sub>=25°C unless otherwise noted)**

Parameter	Symbol	Test conditions	Min	Typ	Max	Unit
<b>Static Characteristics</b>						
Drain-Source Breakdown Voltage	V <sub>(BR)DSS</sub>	V <sub>GS</sub> =0V, I <sub>D</sub> =250μA	60			V
Gate-Threshold Voltage <sup>(Note3)</sup>	V <sub>GS(th)</sub>	V <sub>DS</sub> =V <sub>GS</sub> , I <sub>D</sub> =250μA	1.0		3.0	V
Gate-Body Leakage Current	I <sub>GSS</sub>	V <sub>GS</sub> =± 20V, V <sub>DS</sub> =0V			±100	nA
Zero Gate Voltage Drain Current	I <sub>DSS</sub>	V <sub>DS</sub> =60V, V <sub>GS</sub> =0V			1	μA
Drain-Source On-Resistance <sup>(Note3)</sup>	R <sub>DS(on)</sub>	V <sub>GS</sub> =10V, I <sub>D</sub> =3A		25	29	mΩ
		V <sub>GS</sub> =4.5V, I <sub>D</sub> =3A		30	35	
Forward Transconductance <sup>(Note3)</sup>	g <sub>fs</sub>	V <sub>DS</sub> =5V, I <sub>D</sub> =4.5A	11			S
<b>Dynamic Characteristics<sup>(Note4)</sup></b>						
Input Capacitance	C <sub>iss</sub>	V <sub>DS</sub> =30V, V <sub>GS</sub> =0V, f=1MHz		500		pF
Output Capacitance	C <sub>oss</sub>			60		
Reverse Transfer Capacitance	C <sub>rss</sub>			25		
<b>Switching Characteristics<sup>(Note4)</sup></b>						
Total Gate Charge	Q <sub>g</sub>	V <sub>DS</sub> =48V, V <sub>GS</sub> =10V, I <sub>D</sub> =15A		12		nC
Gate-Source Charge	Q <sub>gs</sub>			4.1		
Gate-Drain Charge	Q <sub>gd</sub>			4.5		
Turn-on Delay Time	t <sub>d(on)</sub>	V <sub>DD</sub> =30V, V <sub>GS</sub> =10V, I <sub>D</sub> =2A, R <sub>G</sub> =3Ω, R <sub>L</sub> =6.7Ω		5.0		ns
Turn-on Rise Time	t <sub>r</sub>			2.6		
Turn-off Delay Time	t <sub>d(off)</sub>			16.1		
Turn-off Fall Time	t <sub>f</sub>			2.3		
<b>Drain-Source Diode Characteristics</b>						
Diode Forward Voltage <sup>(Note3)</sup>	V <sub>SD</sub>	V <sub>GS</sub> =0V, I <sub>S</sub> =20A			1.2	V
Diode Forward Current <sup>(Note2)</sup>	I <sub>S</sub>				20	A
Reverse Recovery Time	t <sub>rr</sub>	I <sub>F</sub> =20A, di/dt=100A/μs <sup>(Note4)</sup>		35		nS
Reverse Recovery Charge	Q <sub>rr</sub>				53	
Forward Turn-On Time	t <sub>on</sub>	Intrinsic turn-on time is negligible (turn-on is dominated by LS+LD)				



SOT23-6 Package Information



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	1.050	1.250	0.041	0.049
A1	0.000	0.100	0.000	0.004
A2	1.050	1.150	0.041	0.045
b	0.300	0.500	0.012	0.020
c	0.100	0.200	0.004	0.008
D	2.820	3.020	0.111	0.119
E	1.500	1.700	0.059	0.067
E1	2.650	2.950	0.104	0.116
e	0.950(BSC)		0.037(BSC)	
e1	1.800	2.000	0.071	0.079
L	0.300	0.600	0.012	0.024
theta	0°	8°	0°	8°