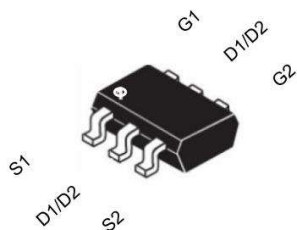


### Product Summary

- $V_{DS} = 20V, I_D = 6A$   
 $R_{DS(ON)}, 19.5m\Omega$  (Typ) @  $V_{GS} = 4.5V$   
 $R_{DS(ON)}, 25m\Omega$  (Typ) @  $V_{GS} = 2.5V$
- Trench Power Technology
- Low  $R_{DS(ON)}$
- Low Gate Charge
- Optimized for Fast-switching Applications

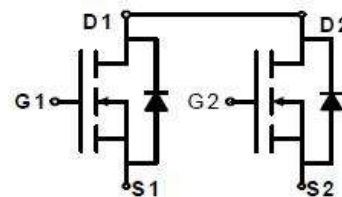
### Package and Pin Configuration



### Application

- Synchronous Rectification in DC/DC and AC/DC Converters
- Isolated DC/DC Converters in Telecom and Industrial

### Circuit diagram



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

Parameter	Symbol	Value	Unit	
Drain-Source Voltage	$V_{DS}$	20	V	
Gate-Source Voltage	$V_{GS}$	$\pm 10$	V	
Drain Current-Continuous <sup>Note3</sup>	$I_D$	TC=25°C	6	A
		TC=70°C	4.8	A
Drain Current-Pulsed <sup>Note1</sup>	$I_{DM}$	24	A	
Avalanche Energy <sup>Note4</sup>	$E_{AS}$	7.4	mJ	
Maximum Power Dissipation	TC=25°C	$P_D$	1.5	W
Storage Temperature Range	$T_{STG}$	-55 to +150	°C	
Operating Junction Temperature Range	$T_J$	-55 to +150	°C	

### Thermal Resistance

Parameter	Symbol	Min.	Typ.	Max	Unit
Thermal Resistance, Junction-to-Case	$R_{\theta JC}$	-	14.4	-	°C/W
Thermal Resistance, Junction-to-Ambient	$R_{\theta JA}$	-	83	-	°C/W

### Electrical Characteristics ( $T_A = 25^\circ\text{C}$ unless otherwise noted )

OFF CHARACTERISTICS						
Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
Drain-Source Breakdown Voltage	$BV_{DSS}$	$V_{GS}=0V, I_{DS}=250\mu A$	20	-	-	V
Zero Gate Voltage Drain Current	$I_{DSS}$	$V_{DS}=20V, V_{GS}=0V$	-	-	1	$\mu A$
Gate-Body Leakage	$I_{GSS}$	$V_{GS}=\pm 10V, V_{DS}=0V$	-	-	$\pm 100$	nA

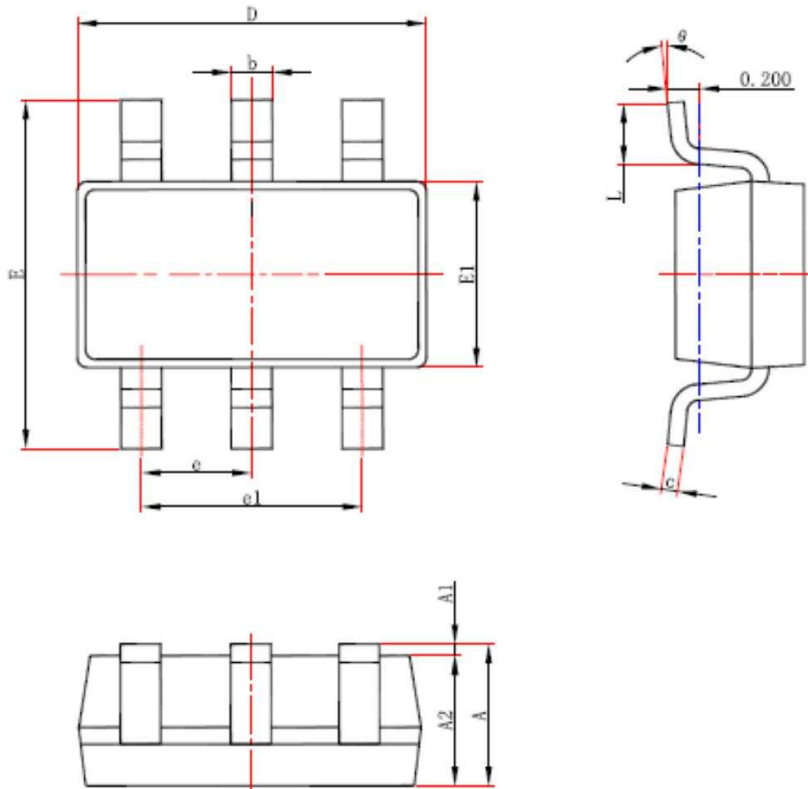
ON CHARACTERISTICS						
Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
Gate Threshold Voltage	$V_{GS(TH)}$	$V_{DS}=V_{GS}, I_{DS}=250\mu A$	0.5	0.7	1.2	V
Drain-Source On-State Resistance	$R_{DS(ON)}$	$V_{GS}=4.5V, I_{DS}=3A$	-	19.5	25	m $\Omega$
		$V_{GS}=2.5V, I_{DS}=3A$	-	25	31.5	

DYNAMIC CHARACTERISTICS						
Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
Input Capacitance	$C_{ISS}$	$V_{DS}=10V, V_{GS}=0V,$ $f=1\text{MHz}$	-	466	-	pF
Output Capacitance	$C_{OSS}$		-	65	-	
Reverse Transfer Capacitance	$C_{RSS}$		-	58	-	

SWITCHING CHARACTERISTICS						
Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
Turn-On Delay Time	$T_{d(on)}$	$V_{GS}=4.5V, V_{DS}=10V,$ $R_{GEN}=2.5\Omega$ $I_D=6A$	-	15	-	ns
Rise Time	$t_r$		-	17	-	
Turn-Off Delay Time	$T_{d(off)}$		-	42	-	
Fall Time	$t_f$		-	10	-	
Total Gate Charge at 10V	$Q_g$	$V_{DS}=10V, I_{DS}=6A,$ $V_{GS}=10V$	-	5.7	-	nC
Gate to Source Gate Charge	$Q_{gs}$		-	0.8	-	
Gate to Drain "Miller" Charge	$Q_{gd}$		-	1.4	-	

DRAIN-SOURCE DIODE CHARACTERISTICS AND MAXIMUM RATINGS						
Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
Drain-Source Diode Forward Voltage	$V_{SD}$	$V_{GS}=0V, I_{DS}=6A$	-	-	1.2	V

### SOT23-6 Package Outline Dimensions



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
E1	1.500	1.700	0.059	0.067
E	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°