

Product Summary

$V_{(BR)DSS}$	$R_{DS(on)TYP}$	I_D
60V	1.5Ω@10V	0.22A
	1.8Ω@4.5V	

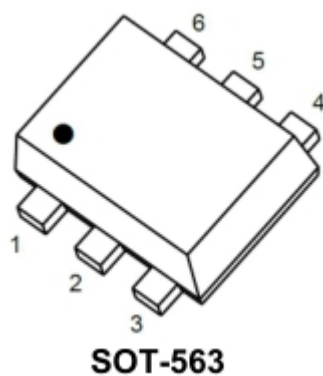
Feature

- Energy Efficient
- Low Threshold Voltage
- High-speed Switching
- Miniature Surface Mount Package Saves Board Space
- ESD Protected

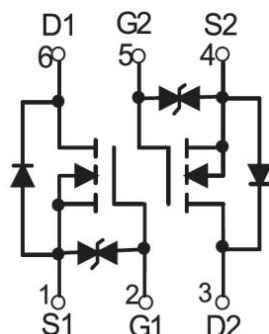
Applications

- DC-DC converters
- load switching
- power management in portable
- battery-powered products

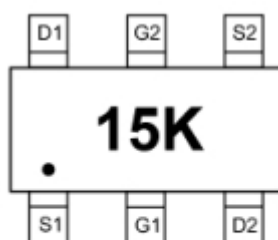
Package



Circuit diagram



Marking



15K =Device Code

Absolute maximum ratings

($T_a=25^{\circ}\text{C}$ unless otherwise noted)

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	60	V
Gate-Source Voltage	V_{GS}	± 20	V
Continuous Drain Current	I_D	0.22	A
Plused Drain Current ⁽¹⁾ @ $t_p < 10\mu\text{s}$	I_{DM}	0.88	A
Power Dissipation	P_D	320	W
Thermal Resistance from Junction to Ambient ⁽²⁾	$R_{\theta JA}$	390	$^{\circ}\text{C}/\text{W}$
Junction Temperature	T_J	150	$^{\circ}\text{C}$
Storage Temperature	T_{STG}	-55~ +150	$^{\circ}\text{C}$

Electrical characteristics

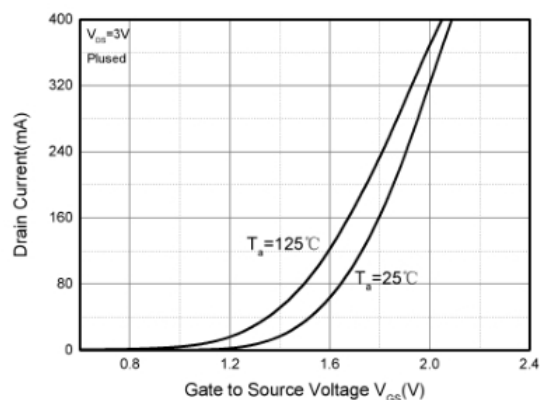
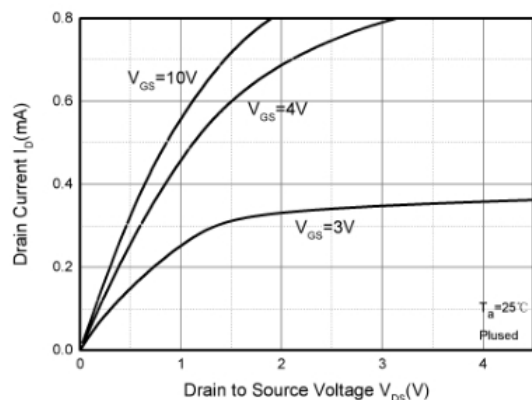
($T_A=25^{\circ}\text{C}$, unless otherwise noted)

Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Off Characteristics						
Drain-Source Breakdown Voltage	BV (BR)DSS	V _{GS} = 0V, I _D =250μA	60			V
Drain Leakage Current	I _{DSS}	V _{DS} =48V,V _{GS} = 0V			1	uA
Gate-Body Leakage Current	I _{GSS}	V _{GS} = ±20V , V _{DS} =0V			±10	uA
Gate Threshold Voltage	V _{GS(th)}	V _{DS} =V _{GS} , I _D =250μA	0.7	1.0	1.5	V
Drain-Source On-State Resistance	R _{DS(on)}	V _{GS} =10V, I _D =200mA		1.5	3.5	mΩ
		V _{GS} =4.5V, I _D =200mA		1.8	5	
		V _{GS} =2.5V, I _D =100mA		2.5	8	
		V _{GS} =1.8V, I _D =10mA		4.5	10	
Dynamic Characteristics						
Input Capacitance	C _{iSS}	V _{DS} =30V, V _{GS} =0V, f=1MHz		27		pF
Output Capacitance	C _{oSS}			13		
Reverse Transfer Capacitance	C _{rSS}			6		
Switching Characteristics						
Turn-On Delay Time	T _{d(on)}	V _{DD} =30V, I _D =300mA, V _{GS} =10V,R _G =6Ω		2.5		nS
Rise Time	T _r			18		
Turn-Off Delay Time	T _{d(off)}			9.7		
Fall Time	T _f			48		
Diode Characteristics						
Diode Forward Voltage ²	V _{SD}	V _{GS} =0V , I _S =0.5A			1.2	V

Note :

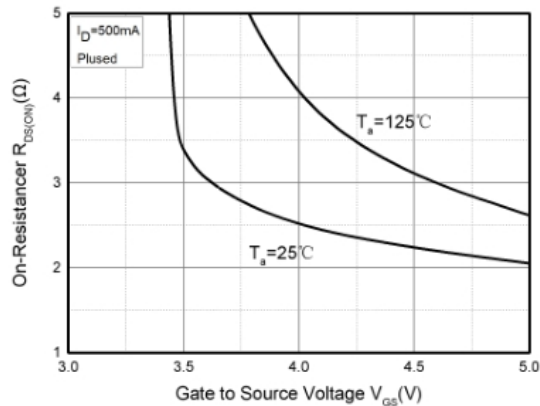
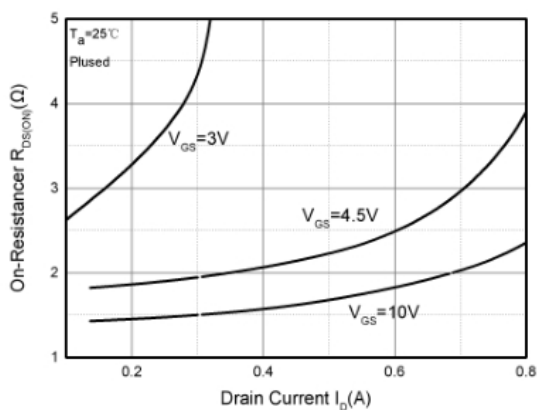
1. Repetitive rating: Pulse width limited by junction temperature.
2. Surface mounted on FR4 board, $t \leq 10s$.
3. Pulse Test: Pulse Width $\leq 300\mu s$, Duty Cycle $\leq 2\%$.
4. Guaranteed by design, not subject to production.

Typical Characteristics



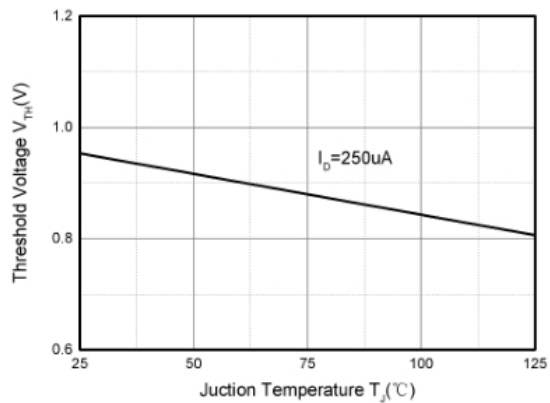
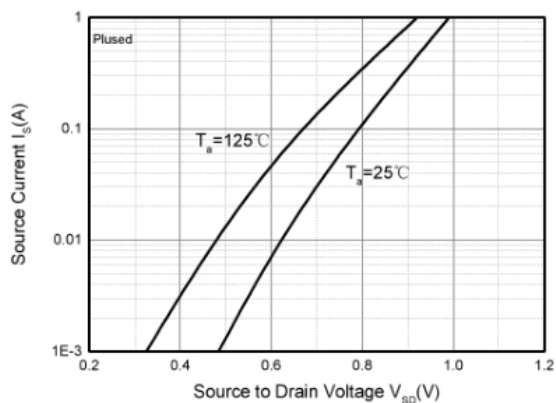
Output Characteristics

Transfer Characteristics



$R_{DS(ON)}-I_D$

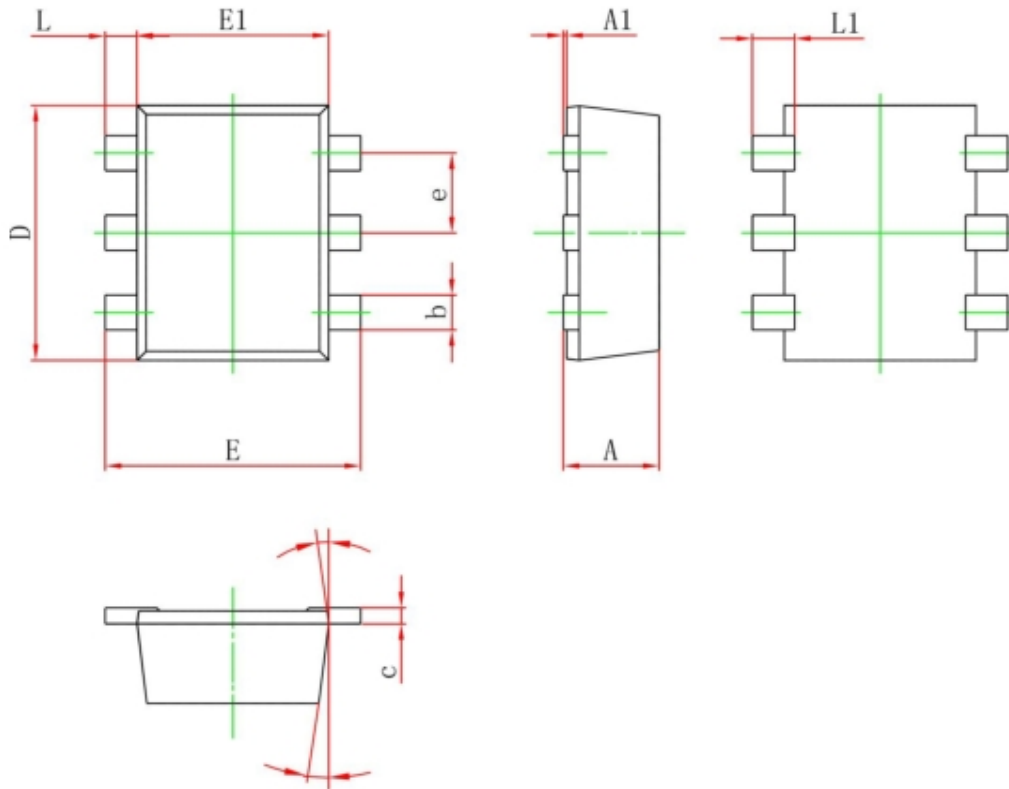
$R_{DS(ON)}-V_{GS}$



I_S-V_{SD}

Threshold Voltage

SOT-563 Package Information



Symbol	Dimensions In Millimeters	
	Min	Max
A	0.525	0.600
A1	0.000	0.050
e	0.450	0.550
c	0.090	0.160
D	1.500	1.700
b	0.170	0.270
E1	1.100	1.300
E	1.500	1.700
L	0.100	0.300
L1	0.200	0.400
θ	7°Ref.	