



Product Summary

V _{(BR)DSS}	R _{DS(on)TYP}	I _D
20V	170mΩ@4.5V	0.75A
	230mΩ@2.5V	
	330mΩ@1.8V	
-20V	400mΩ@-4.5V	-0.66A
	570mΩ@-2.5V	
	810mΩ@-1.8V	

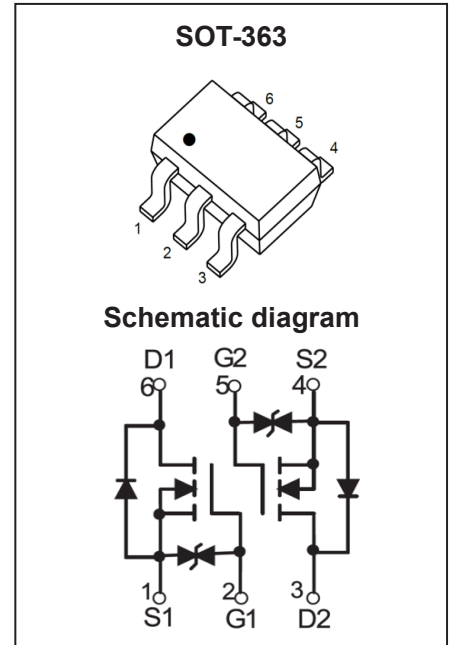
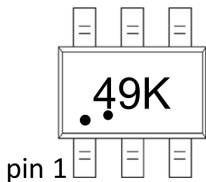
Feature

- Trench Technology Power MOSFET
- Low R_{DS(ON)}
- Low Gate Charge
- ESD Protected Gate

Application

- Load Switch
- DC/DC Converter

MARKING:



ABSOLUTE MAXIMUM RATINGS (T_A = 25°C unless otherwise noted)

Parameter	Symbol	Value	Value	Unit
Drain - Source Voltage	V _{DS}	20	-20	V
Gate - Source Voltage	V _{GS}	±10	±10	V
Continuous Drain Current ^{1,5}	I _D	0.75	-0.66	A
Pulsed Drain Current ²	I _{DM}	1.8	-1.2	A
Power Dissipation ⁴	P _D	0.15		W
Thermal Resistance from Junction to Ambient ⁵	R _{θJA}	833		°C/W
Junction Temperature	T _J	150		°C
Storage Temperature	T _{STG}	-55~ +150		°C

MOSFET ELECTRICAL CHARACTERISTICS ($T_J = 25^\circ\text{C}$ unless otherwise noted)
NMOS:

Parameter	Symbol	Test Condition	Min	Type	Max	Unit
Off Characteristics						
Drain - Source Breakdown Voltage	$V_{(BR)DSS}$	$V_{GS} = 0V, I_D = 250\mu A$	20			V
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS} = 20V, V_{GS} = 0V$			1	μA
Gate - Body Leakage Current	I_{GSS}	$V_{GS} = \pm 10V, V_{DS} = 0V$			± 10	μA
On Characteristics³						
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = 250\mu A$	0.4	0.7	1.0	V
Drain-source On-resistance	$R_{DS(on)}$	$V_{GS} = 4.5V, I_D = 0.65A$		170	260	m Ω
		$V_{GS} = 2.5V, I_D = 0.55A$		230	360	
		$V_{GS} = 1.8V, I_D = 0.45A$		330	590	
Dynamic Characteristics						
Input Capacitance	C_{iss}	$V_{DS} = 10V, V_{GS} = 0V, f = 1MHz$		54.1		pF
Output Capacitance	C_{oss}			12.8		
Reverse Transfer Capacitance	C_{rss}			10.3		
Gate Resistance	R_g	$V_{DS} = 0V, V_{GS} = 0V, f = 1MHz$		56		Ω
Switching Characteristics						
Turn-on Delay Time	$t_{d(on)}$	$V_{DD} = 15V, V_{GS} = 4.5V, I_D = 0.5A,$ $R_G = 10\Omega$		6.7		ns
Turn-on Rise Time	t_r			4.8		
Turn-off Delay Time	$t_{d(off)}$			17.3		
Turn-off Fall Time	t_f			7.4		
Source - Drain Diode Characteristics						
Diode Forward Voltage ³	V_{SD}	$V_{GS} = 0V, I_S = 0.5A$			1.2	V

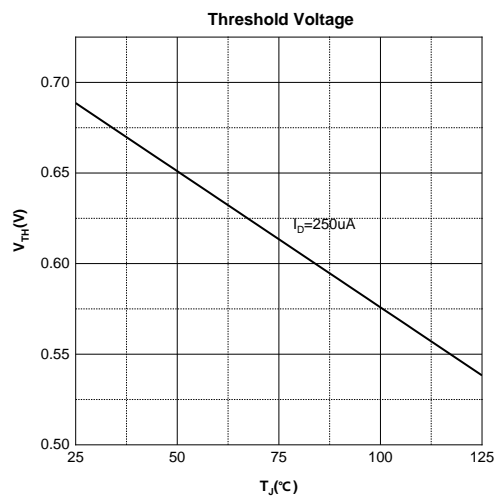
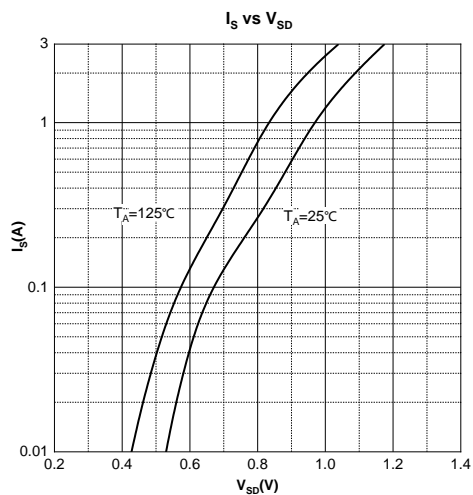
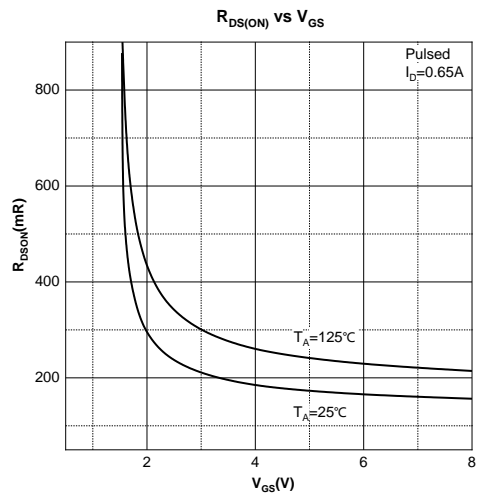
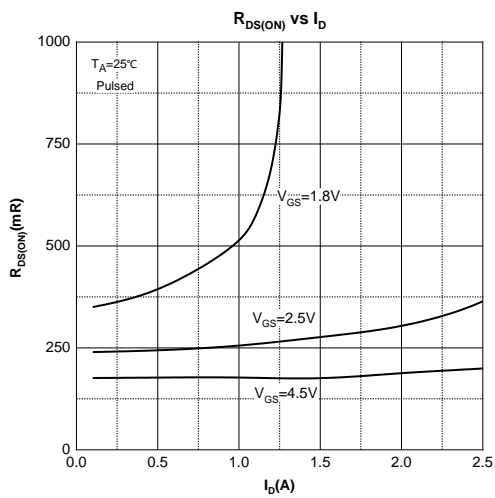
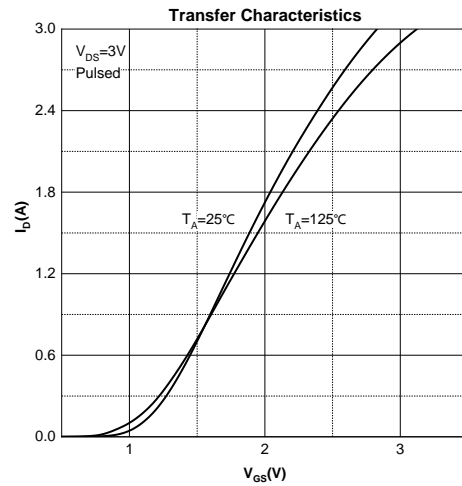
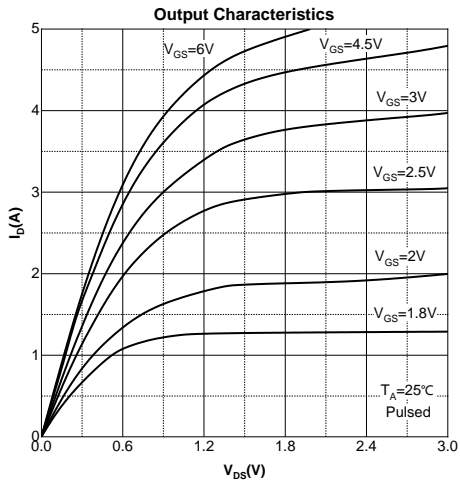
MOSFET ELECTRICAL CHARACTERISTICS ($T_J = 25^\circ\text{C}$ unless otherwise noted)
PMOS:

Parameter	Symbol	Test Condition	Min	Type	Max	Unit
Off Characteristics						
Drain - Source Breakdown Voltage	$V_{(BR)DSS}$	$V_{GS} = 0V, I_D = -250\mu A$	-20			V
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS} = -20V, V_{GS} = 0V$			-1	μA
Gate - Body Leakage Current	I_{GSS}	$V_{GS} = \pm 10V, V_{DS} = 0V$			± 10	nA
On Characteristics³						
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = -250\mu A$	-0.4	-0.7	-1.0	V
Drain-source On-resistance	$R_{DS(on)}$	$V_{GS} = -4.5V, I_D = -1A$		400	580	m Ω
		$V_{GS} = -2.5V, I_D = -0.8A$		570	840	
		$V_{GS} = -1.8V, I_D = -0.5A$		810	1140	
Dynamic Characteristics						
Input Capacitance	C_{iss}	$V_{DS} = -10V, V_{GS} = 0V, f = 1MHz$		76		pF
Output Capacitance	C_{oss}			14.6		
Reverse Transfer Capacitance	C_{rss}			12.2		
Gate Resistance	R_g	$V_{DS} = 0V, V_{GS} = 0V, f = 1MHz$		68		Ω
Switching Characteristics						
Turn-on Delay Time	$t_{d(on)}$	$V_{DD} = -10V, V_{GS} = -4.5V, I_D = -0.2A,$ $R_G = 10\Omega$		9		ns
Turn-on Rise Time	t_r			5.7		
Turn-off Delay Time	$t_{d(off)}$			32.6		
Turn-off Fall Time	t_f			20.3		
Source - Drain Diode Characteristics						
Diode Forward Voltage ³	V_{SD}	$V_{GS} = 0V, I_S = -0.5A$			1.2	V

Notes :

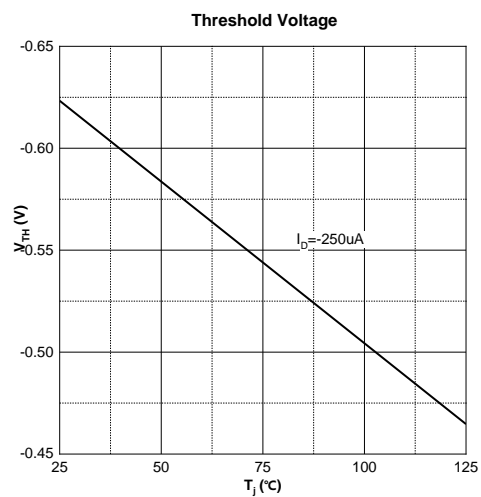
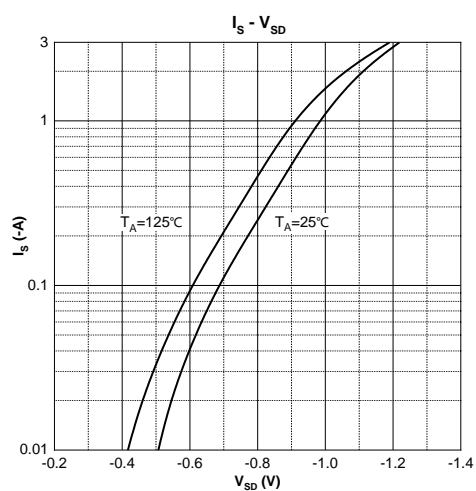
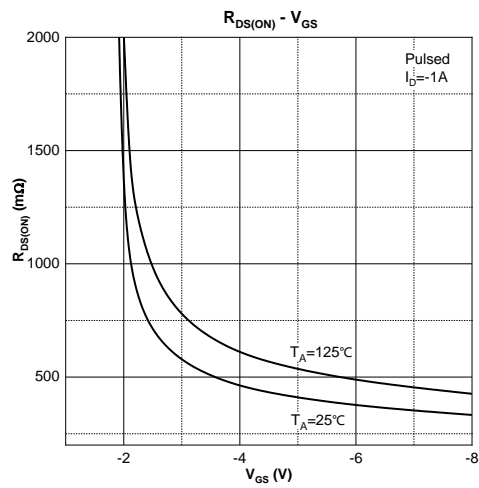
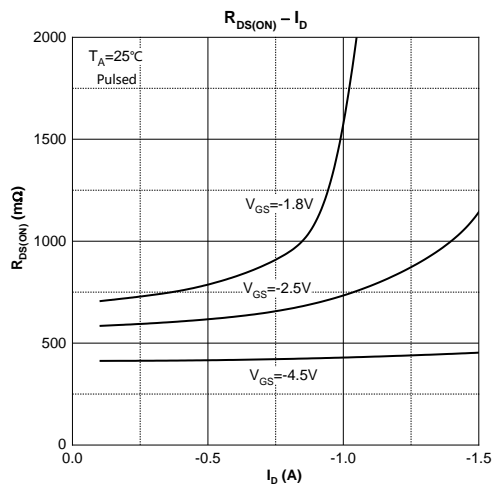
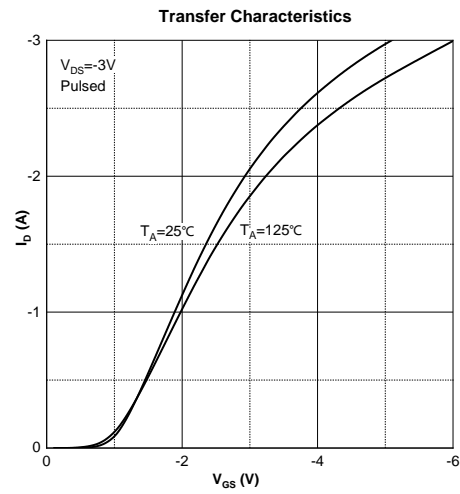
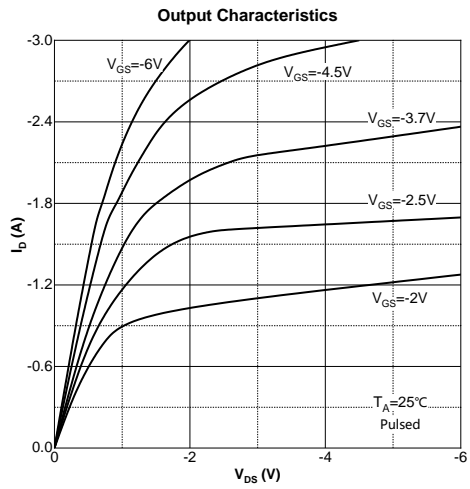
- 1.The maximum current rating is limited by package.
- 2.Pulse Test : Pulse Width $\leq 10\mu s$, duty cycle $\leq 1\%$.
- 3.Pulse Test : Pulse Width $\leq 300\mu s$, duty cycle $\leq 2\%$.
- 4.The power dissipation P_D is limited by $T_{J(MAX)} = 150^\circ\text{C}$.
- 5.Device mounted on 1in² FR-4 board with 2oz. Copper, in a still air environment with $T_A = 25^\circ\text{C}$.

Typical Characteristics
NMOS:

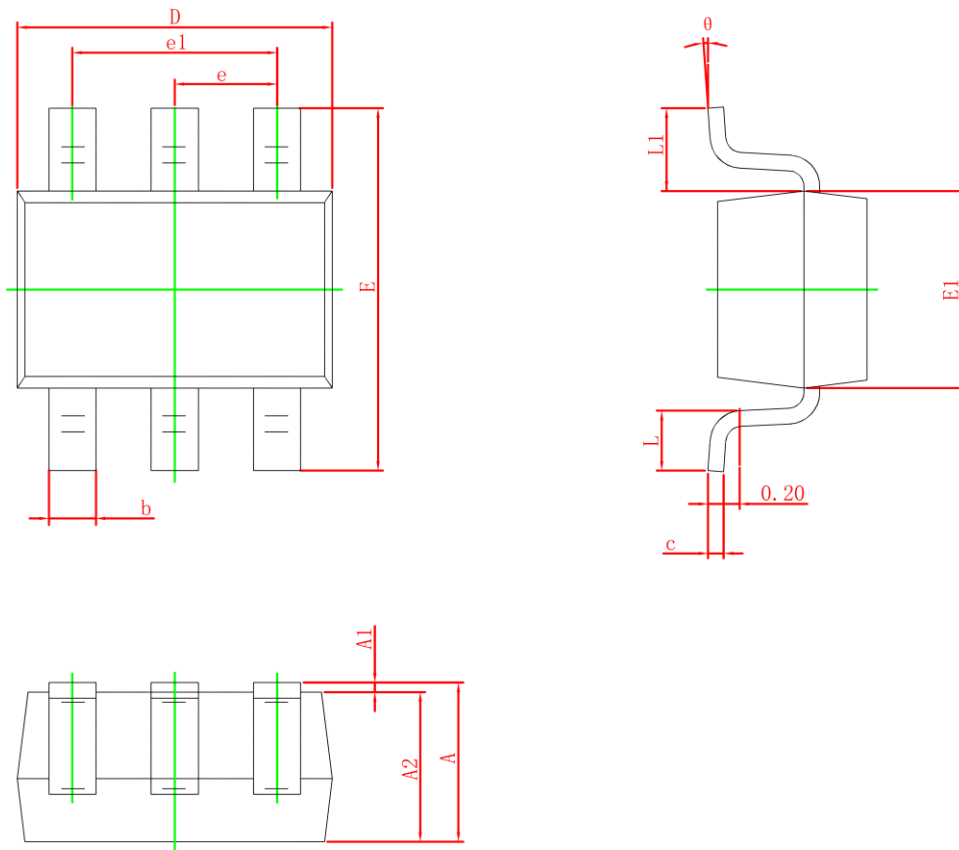


Typical Characteristics

PMOS:



PDFN3.3×3.3-8L Package Information



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	0.900	1.000	0.035	0.039
A1	0	0.100	0.000	0.004
A2	0.900	1.000	0.035	0.039
b	0.150	0.350	0.006	0.014
c	0.080	0.150	0.003	0.006
D	1.800	2.200	0.071	0.087
E	2.000	2.450	0.079	0.096
E1	1.150	1.350	0.045	0.053
e	0.650TYP		0.026TYP	
e1	1.200	1.400	0.047	0.055
L1	0.525REF		0.021REF	
L	0.260	0.460	0.010	0.018
θ	0°	8°	0°	8°