

N & P-Channel 150-V (D-S) MOSFET

Key Features:

- Low $r_{DS(on)}$ trench technology
- Low thermal impedance
- Fast switching speed

Typical Applications:

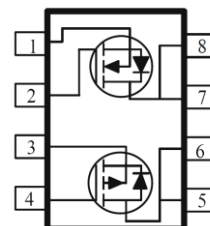
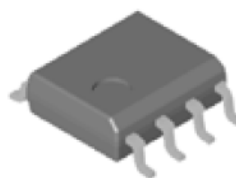
- White LED boost converters
- Automotive Systems
- Industrial DC/DC Conversion Circuits

PRODUCT SUMMARY		
V_{DS} (V)	$r_{DS(on)}$ (m Ω)	I_D (A)
150	255 @ $V_{GS} = 10V$	2.3
	290 @ $V_{GS} = 4.5V$	2.2
-150	500 @ $V_{GS} = -10V$	-1.7
	530 @ $V_{GS} = -4.5V$	-1.6



RoHS
COMPLIANT
HALOGEN
FREE

SO-8



ABSOLUTE MAXIMUM RATINGS ($T_A = 25^\circ\text{C}$ UNLESS OTHERWISE NOTED)

Parameter	Symbol	Nch Limit	Pch Limit	Units	
Drain-Source Voltage	V_{DS}	150	-150	V	
Gate-Source Voltage	V_{GS}	± 20	± 20		
Continuous Drain Current ^a	I_D	$T_A = 25^\circ\text{C}$	2.3	-1.7	A
		$T_A = 70^\circ\text{C}$	1.8	-1.3	
Pulsed Drain Current ^b	I_{DM}	9	-7		
Continuous Source Current (Diode Conduction) ^a	I_S	2.5	-2.3	A	
Power Dissipation ^a	P_D	$T_A = 25^\circ\text{C}$	2.1	2.1	W
		$T_A = 70^\circ\text{C}$	1.3	1.3	
Operating Junction and Storage Temperature Range	T_J, T_{stg}	-55 to 150		$^\circ\text{C}$	

THERMAL RESISTANCE RATINGS

Parameter	Symbol	Maximum	Units
Maximum Junction-to-Ambient ^a	$R_{\theta JA}$	$t \leq 10$ sec	62.5
		Steady State	110

Notes

- Surface Mounted on 1" x 1" FR4 Board.
- Pulse width limited by maximum junction temperature

Electrical Characteristics

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Static						
Gate-Source Threshold Voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = 250 \mu A$ (Nch)	1			V
		$V_{DS} = V_{GS}, I_D = -250 \mu A$ (Pch)	-1			V
Gate-Body Leakage	I_{GSS}	$V_{DS} = 0 V, V_{GS} = \pm 20 V$			± 100	nA
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS} = 120 V, V_{GS} = 0 V$ (Nch)			1	μA
		$V_{DS} = -120 V, V_{GS} = 0 V$ (Pch)			-1	
On-State Drain Current ^a	$I_{D(on)}$	$V_{DS} = 5 V, V_{GS} = 10 V$ (Nch)	3.5			A
		$V_{DS} = -5 V, V_{GS} = -10 V$ (Pch)	-2.5			A
Drain-Source On-Resistance ^a	$r_{DS(on)}$	$V_{GS} = 10 V, I_D = 2.1 A$ (Nch)			255	$m\Omega$
		$V_{GS} = 4.5 V, I_D = 1.7 A$ (Nch)			290	
		$V_{GS} = -10 V, I_D = -1.4 A$ (Pch)			500	$m\Omega$
		$V_{GS} = -4.5 V, I_D = -1 A$ (Pch)			530	
Forward Transconductance ^a	g_{fs}	$V_{DS} = 15 V, I_D = 2.1 A$ (Nch)		11		S
		$V_{DS} = -15 V, I_D = -1.4 A$ (Pch)		11		S
Diode Forward Voltage ^a	V_{SD}	$I_S = 1.3 A, V_{GS} = 0 V$ (Nch)		0.76		V
		$I_S = 1.2 A, V_{GS} = 0 V$ (Pch)		0.75		V
Dynamic ^b						
Total Gate Charge	Q_g	N - Channel $V_{DS} = 75 V, V_{GS} = 4.5 V, I_D = 2.1 A$		10		nC
Gate-Source Charge	Q_{gs}		4.0			
Gate-Drain Charge	Q_{gd}		4.7			
Total Gate Charge	Q_g	P - Channel $V_{DS} = -75 V, V_{GS} = -4.5 V,$ $I_D = -1.4 A$		6		nC
Gate-Source Charge	Q_{gs}		2.0			
Gate-Drain Charge	Q_{gd}		2.9			
Turn-On Delay Time	$t_{d(on)}$	N - Channel $V_{DD} = 75 V, R_L = 35.7 \Omega, I_D = 2.1 A,$ $V_{GEN} = 10 V, R_{GEN} = 6 \Omega$		7		ns
Rise Time	t_r		7			
Turn-Off Delay Time	$t_{d(off)}$		47			
Fall Time	t_f		20			
Turn-On Delay Time	$t_{d(on)}$	P - Channel $V_{DD} = -75 V, R_L = 53.6 \Omega,$ $I_D = -1.4 A,$ $V_{GEN} = -10 V, R_{GEN} = 6 \Omega$		8		ns
Rise Time	t_r		7			
Turn-Off Delay Time	$t_{d(off)}$		96			
Fall Time	t_f		79			
Input Capacitance	C_{iss}	N - Channel $V_{DS} = 15 V, V_{GS} = 0 V, f = 1 MHz$		1016		pF
Output Capacitance	C_{oss}		83			
Reverse Transfer Capacitance	C_{rss}		40			
Input Capacitance	C_{iss}	P - Channel $V_{DS} = -15 V, V_{GS} = 0 V, f = 1 MHz$		1008		pF
Output Capacitance	C_{oss}		100			
Reverse Transfer Capacitance	C_{rss}		61			