P-Channel 250-V (D-S) MOSFET

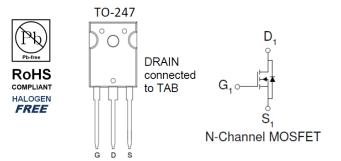
Key Features:

- 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				
VDS (V)	$r_{DS(on)}(m\Omega)$	I⊳(A)		
-250	300 @ V _{GS} = -10V	-30 ^a		
-250	310 @ V _{GS} = -6.5V	-30		



ABSOLUTE MAXIMUM RATINGS ($T_A = 25^{\circ}C$ UNLESS OTHERWISE NOTED)					
Parameter		Symbol	Limit	Units	
Drain-Source Voltage			-250	V	
Gate-Source Voltage		V _{GS}	±20	V	
Continuous Drain Current ^a	T _C =25°C	I _D	-30 A		
Pulsed Drain Current ^b		I _{DM}	-120	A	
Continuous Source Current (Diode Conduction) ^a	T _C =25°C	ا _s	-30	А	
Power Dissipation ^a	T _C =25°C	PD	500	W	
Operating Junction and Storage Temperature Range		T _J , T _{stg}	-55 to 175	°C	

THERMAL RESISTANCE RATINGS					
Parameter	Symbol	Maximum	Units		
Maximum Junction-to-Ambient °	$R_{ extsf{ heta}JA}$	40	°C/W		
Maximum Junction-to-Case	$R_{ extsf{ heta}JC}$	0.29	0/00		

Notes

- a. Package Limited
- b. Pulse width limited by maximum junction temperature
- c. Surface Mounted on 1" x 1" FR4 Board.

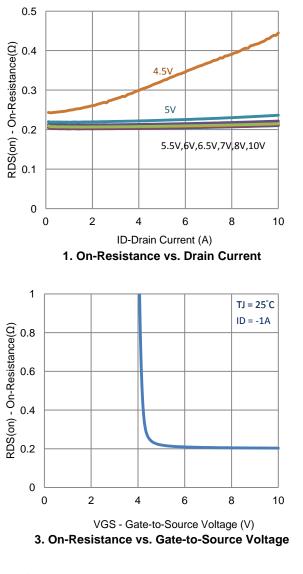
Electrical Characteristics

Parameter	Symbol	Test Conditions	Min	Тур	Max	Unit	
Static							
Gate-Source Threshold Voltage	V _{GS(th)}	$V_{DS} = V_{GS}, I_{D} = -250 \text{ uA}$	-1			V	
Gate-Body Leakage	I _{GSS}	$V_{DS} = 0 V, V_{GS} = \pm 20 V$			±100	nA	
Zero Gate Voltage Drain Current		$V_{DS} = -200 \text{ V}, \text{ V}_{GS} = 0 \text{ V}$			-1	uA	
	DSS	$V_{DS} = -200 \text{ V}, V_{GS} = 0 \text{ V}, T_{J} = 55^{\circ}\text{C}$	_{GS} = 0 V, T _J = 55°C		-10	uA	
On-State Drain Current ^a	I _{D(on)}	$V_{DS} = -5 V, V_{GS} = -10 V$	-37.5			Α	
Drain Course On Desistance a	r	$V_{GS} = -10 \text{ V}, \text{ I}_{D} = -10 \text{ A}$			300	mΩ	
Drain-Source On-Resistance ^a	r _{DS(on)}	$V_{GS} = -6.5 \text{ V}, \text{ I}_{D} = -8 \text{ A}$			310	11152	
Forward Transconductance ^a	g _{fs}	$V_{DS} = -15 \text{ V}, \text{ I}_{D} = -10 \text{ A}$		21		S	
Diode Forward Voltage ^a	V _{SD}	$I_{S} = -15 \text{ A}, V_{GS} = 0 \text{ V}$		-0.87		V	
		Dynamic ^b					
Total Gate Charge	Qg	V _{DS} = -100 V, V _{GS} = -6.5 V,		59		nC	
Gate-Source Charge	Q_{gs}	$V_{DS} = -100 V, V_{GS} = -0.5 V,$ $I_{D} = -1 A$		21			
Gate-Drain Charge	Q_{gd}			21			
Turn-On Delay Time	t _{d(on)}	V _{DS} = -100 V, R ₁ = 100 Ω,		27			
Rise Time	t _r	$V_{DS} = -100 V, K_L = 100 \Omega_2,$ $I_D = -1 A,$		19		20	
Turn-Off Delay Time	t _{d(off)}	$V_{\text{GEN}} = -10 \text{ V}, \text{ R}_{\text{GEN}} = 6 \Omega$		86		ns	
Fall Time	t _f	$v_{\text{GEN}} = -10 v, R_{\text{GEN}} - 0 \Omega$		49			
Input Capacitance	C _{iss}			2930			
Output Capacitance	C _{oss}	V_{DS} = -50 V, V_{GS} = 0 V, f = 1 Mhz		104		pF	
Reverse Transfer Capacitance	C _{rss}			77			

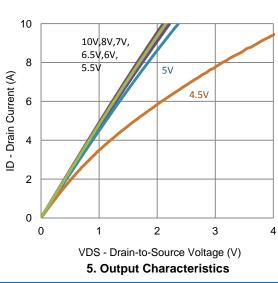
Notes

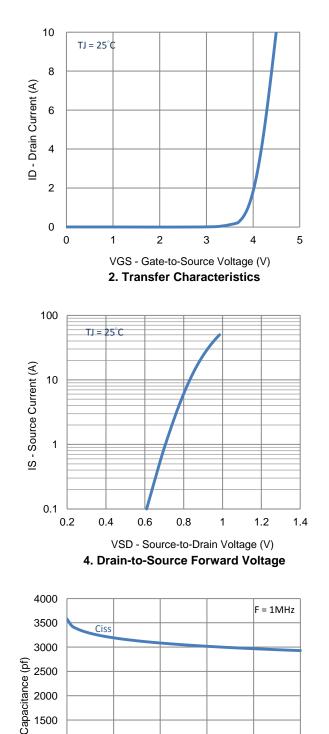
- a. Pulse test: PW <= 300us duty cycle <= 2%.
- b. Guaranteed by design, not subject to production testing.

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Typical Electrical Characteristics





VDS-Drain-to-Source Voltage (V) 6. Capacitance

30

20

40

50

2000

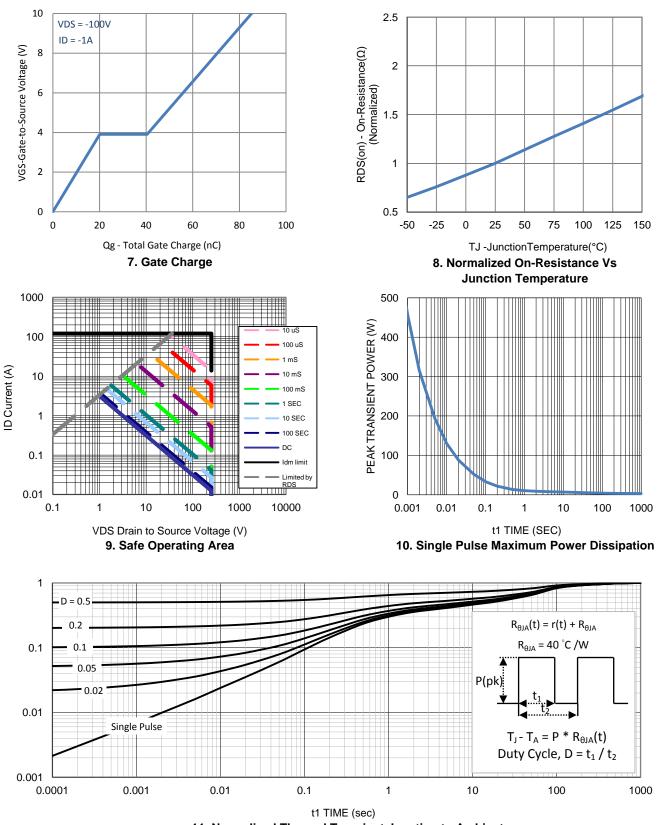
1500 1000

500

0

0

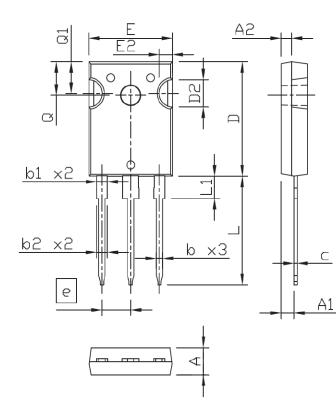
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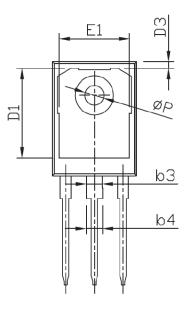


Typical Electrical Characteristics

11. Normalized Thermal Transient Junction to Ambient

Package Information





SYMBOLS	DIMENSIONS IN MILLIMETERS						
STMBULS	MIN	NDM	MAX				
A	4,90	5,00	5.10				
A1	2,32	2.42	2.52				
A2	1,90	2,00	2,10				
b	1.17	1.22	1.27				
b1	1,97	2,02	2.07				
p5	2.00	2.10	2.20				
b3	2,97	3.02	3.07				
b4	3.00	3.10	3.20				
C D	0,59	0,62	0.66				
	20,90	21,00	21,10				
D1 D2	16.25	16.55	16.85				
D2		5.00 TYP					
D3	1.05	1.20	1.35				
e	5.44 BSC						
E	15.70	15.80	15.90				
E1	13.06	13.26	13.46				
E2	2,50 TYP						
L	19.72	19,92	20.12				
L1			4,30				
Q	6.15 BSC						
Q1	5,60	5.80	6.00				
ØΡ	3.55	3.60	3.65				

т