# N-Channel 100-V (D-S) MOSFET

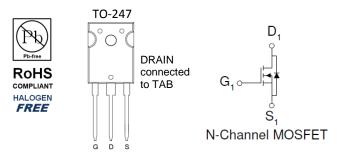
### **Key Features:**

- Low r<sub>DS(on)</sub> trench technology
- · Low thermal impedance
- · Fast switching speed

### **Typical Applications:**

- Hot Swap Inrush Limit Circuits
- Uninterruptible Power Supplies and Inverters
- Motor Speed Controls

PRODUCT SUMMARY				
Vds (V)	$r_{DS(on)}(m\Omega)$	I⊳(A)		
100	4.6 @ V <sub>GS</sub> = 10V	290 <sup>a</sup>		
	$6.6 @ V_{GS} = 6.5V$	290		



ABSOLUTE MAXIMUM RATINGS ( $T_A = 25^{\circ}C$ UNLESS OTHERWISE NOTED)						
Parameter			Limit	Units		
Drain-Source Voltage			100	V		
Gate-Source Voltage	V <sub>GS</sub>	±20	V			
Continuous Drain Current <sup>a</sup>	T <sub>C</sub> =25°C	I <sub>D</sub>	200	А		
Pulsed Drain Current <sup>b</sup>			500	A		
Continuous Source Current (Diode Conduction) <sup>a</sup>			200	А		
Power Dissipation <sup>a</sup>	T <sub>C</sub> =25°C	PD	500	W		
Operating Junction and Storage Temperature Range		T <sub>J</sub> , T <sub>stg</sub>	-55 to 150	°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	C/ VV		

Notes

- a. Silicon and thermal rating is 290A, package is rated at 200A continuous
- b. Pulse width limited by maximum junction temperature

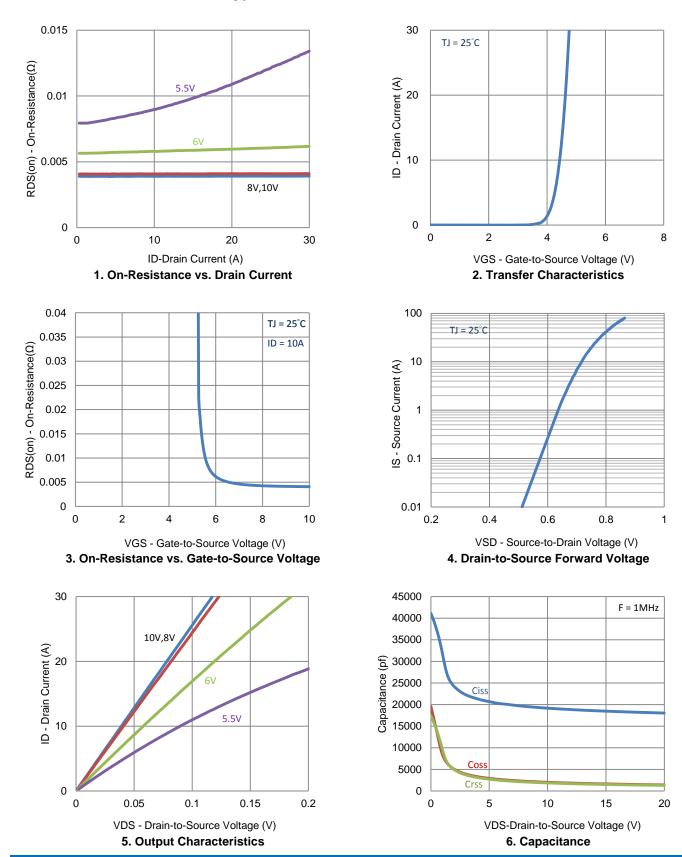
# **Electrical Characteristics**

Parameter	Symbol	Test Conditions	Min	Тур	Max	Unit	
Static							
Gate-Source Threshold Voltage	V <sub>GS(th)</sub>	$V_{DS} = V_{GS}, I_D = 250 \text{ uA}$	1			V	
Gate-Body Leakage	I <sub>GSS</sub>				±100	nA	
Zero Gate Voltage Drain Current		$V_{DS} = 80 \text{ V}, V_{GS} = 0 \text{ V}$	1		1	uA	
	I <sub>DSS</sub>	$V_{DS} = 80 \text{ V}, V_{GS} = 0 \text{ V}, T_{J} = 55^{\circ}\text{C}$			25	uA	
On-State Drain Current <sup>a</sup>	I <sub>D(on)</sub>	$V_{DS} = 5 V, V_{GS} = 10 V$	420			А	
Drain Course On Desistence a	r	$V_{GS} = 10 \text{ V}, \text{ I}_{D} = 50 \text{ A}$			4.6	mΩ	
Drain-Source On-Resistance <sup>a</sup>	r <sub>DS(on)</sub>	$V_{GS} = 6.5 \text{ V}, \text{ I}_{D} = 44 \text{ A}$			6.6		
Forward Transconductance <sup>a</sup>	<b>g</b> <sub>fs</sub>	$V_{DS} = 15 \text{ V}, \text{ I}_{D} = 10 \text{ A}$		68		S	
Diode Forward Voltage <sup>a</sup>	V <sub>SD</sub>	$I_{S} = 50 \text{ A}, V_{GS} = 0 \text{ V}$		0.82		V	
		Dynamic <sup>b</sup>					
Total Gate Charge	Qg	V <sub>DS</sub> = 50 V, V <sub>GS</sub> = 6.5 V,		260		nC	
Gate-Source Charge	$Q_gs$	$V_{\rm DS} = 30$ V, $V_{\rm GS} = 0.3$ V, $I_{\rm D} = 10$ A		58			
Gate-Drain Charge	$Q_gd$	1 <u>0</u> – 10 A		144			
Turn-On Delay Time	t <sub>d(on)</sub>			71			
Rise Time	t <sub>r</sub>	$V_{DS}$ = 50 V, $R_L$ = 5 $\Omega$ , $I_D$ = 10 A,		150		ns	
Turn-Off Delay Time	t <sub>d(off)</sub>	$V_{GEN}$ = 10 V, $R_{GEN}$ = 6 $\Omega$		401			
Fall Time	t <sub>f</sub>			162			
Input Capacitance	C <sub>iss</sub>			18470			
Output Capacitance	C <sub>oss</sub>	$V_{DS} = 15 \text{ V}, V_{GS} = 0 \text{ V}, f = 1 \text{ Mhz}$		1622		pF	
Reverse Transfer Capacitance	C <sub>rss</sub>	1		1504			

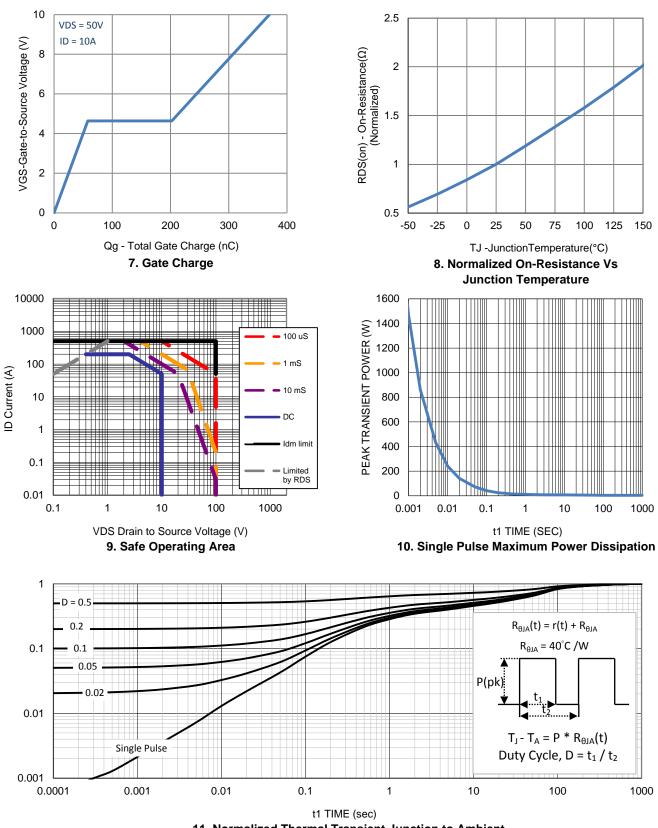
#### Notes

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

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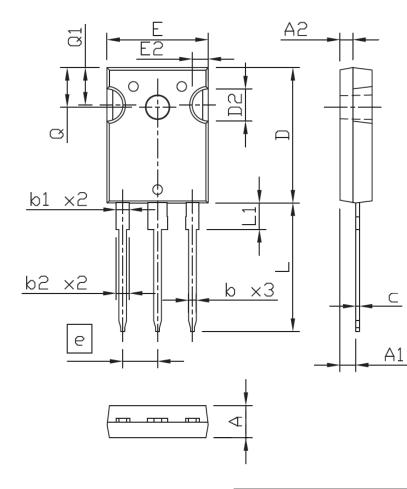
## **Typical Electrical Characteristics**

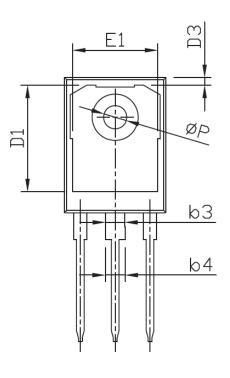


# **Typical Electrical Characteristics**

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		
b2	2.00	2.10	2.20		
b3	2,97	3.02	3,07		
b4	3.00	3.10	3,20		
С	0.59	0,62	0.66		
D	20,90	21,00	21.10		
D1 D2	16.25	16.55	16.85		
		<u>5.00 TYP</u>			
D3	1.05	1.20	1.35		
e		<u>5.44 BSC</u>	2		
e 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		