

N-Channel 200-V (D-S) MOSFET

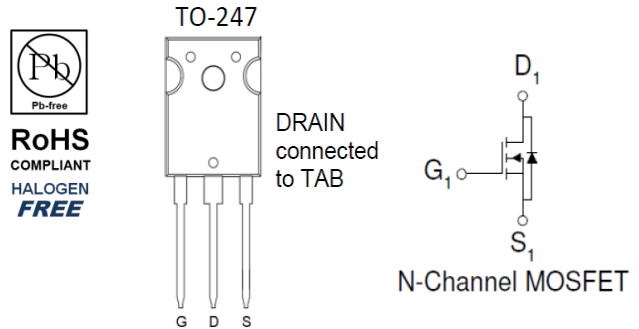
Key Features:

- Low $r_{DS(on)}$ 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		
V_{DS} (V)	$r_{DS(on)}$ (m Ω)	I_D (A)
200	40 @ $V_{GS} = 10V$	100 ^a



ABSOLUTE MAXIMUM RATINGS ($T_A = 25^\circ C$ UNLESS OTHERWISE NOTED)				
Parameter		Symbol	Limit	Units
Drain-Source Voltage		V_{DS}	200	V
Gate-Source Voltage		V_{GS}	± 20	
Continuous Drain Current ^a	$T_C = 25^\circ C$	I_D	100	A
Pulsed Drain Current ^b		I_{DM}	400	
Continuous Source Current (Diode Conduction) ^a	$T_C = 25^\circ C$	I_S	100	A
Power Dissipation ^a	$T_C = 25^\circ C$	P_D	500	W
Operating Junction and Storage Temperature Range		T_J, T_{stg}	-55 to 175	$^\circ C$

THERMAL RESISTANCE RATINGS			
Parameter	Symbol	Maximum	Units
Maximum Junction-to-Ambient ^c	$R_{\theta JA}$	40	$^\circ C/W$
Maximum Junction-to-Case	$R_{\theta JC}$	0.29	

Notes

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

Electrical Characteristics

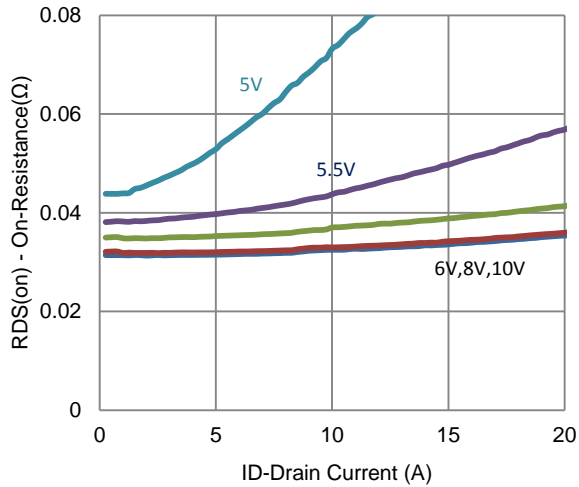
Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Static						
Gate-Source Threshold Voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = 250 \mu A$	1			V
Gate-Body Leakage	I_{GSS}	$V_{DS} = 0 V, V_{GS} = \pm 20 V$			± 100	nA
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS} = 160 V, V_{GS} = 0 V$			1	uA
		$V_{DS} = 160 V, V_{GS} = 0 V, T_J = 55^\circ C$			10	
On-State Drain Current ^a	$I_{D(on)}$	$V_{DS} = 5 V, V_{GS} = 10 V$	125			A
Drain-Source On-Resistance ^a	$r_{DS(on)}$	$V_{GS} = 10 V, I_D = 20 A$			40	m Ω
Forward Transconductance ^a	g_{fs}	$V_{DS} = 15 V, I_D = 20 A$		24		S
Diode Forward Voltage ^a	V_{SD}	$I_S = 50 A, V_{GS} = 0 V$		0.97		V
Dynamic ^b						
Total Gate Charge	Q_g	$V_{DS} = 100 V, V_{GS} = 10 V,$ $I_D = 20 A$		153		nC
Gate-Source Charge	Q_{gs}			33		
Gate-Drain Charge	Q_{gd}			60		
Turn-On Delay Time	$t_{d(on)}$	$V_{DS} = 100 V, R_L = 5 \Omega,$ $I_D = 20 A,$ $V_{GEN} = 10 V, R_{GEN} = 6 \Omega$		55		ns
Rise Time	t_r			48		
Turn-Off Delay Time	$t_{d(off)}$			189		
Fall Time	t_f			48		
Input Capacitance	C_{iss}	$V_{DS} = 15 V, V_{GS} = 0 V, f = 1 \text{ Mhz}$		8242		pF
Output Capacitance	C_{oss}			410		
Reverse Transfer Capacitance	C_{rss}			332		

Notes

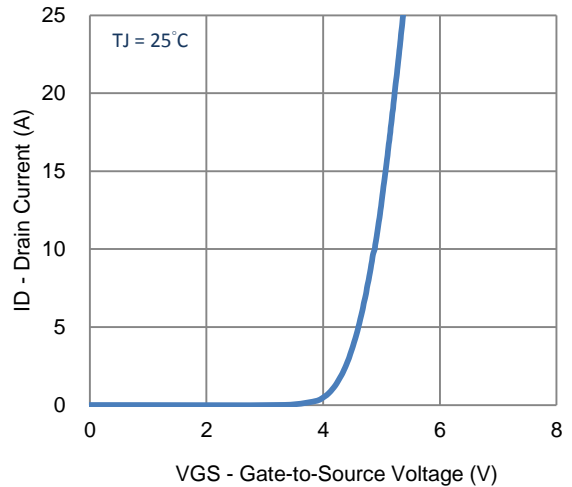
- Pulse test: PW \leq 300us duty cycle \leq 2%.
- Guaranteed by design, not subject to production testing.

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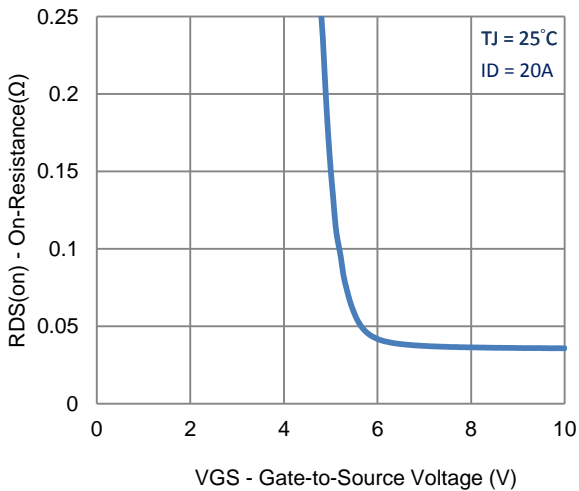
Typical Electrical Characteristics



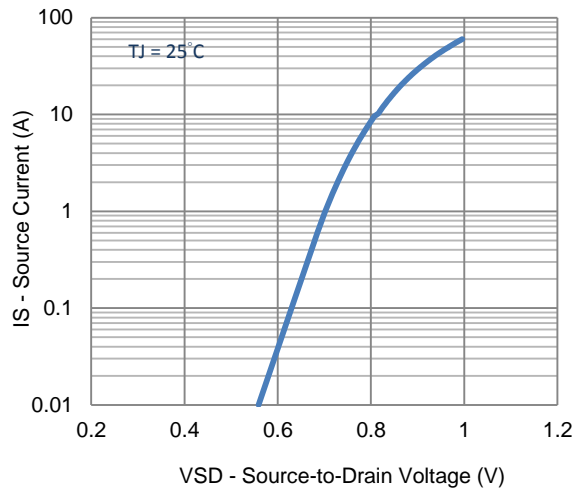
1. On-Resistance vs. Drain Current



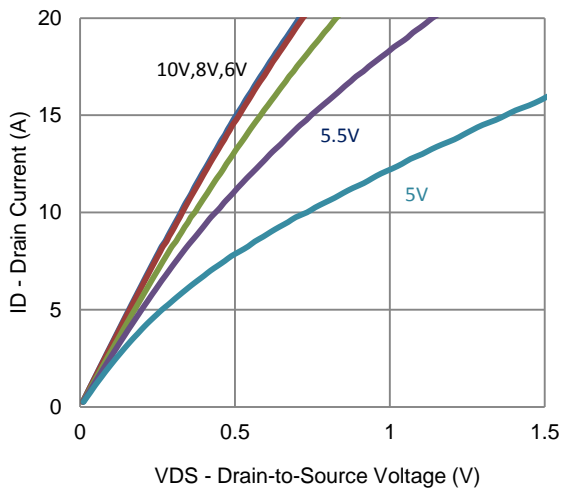
2. Transfer Characteristics



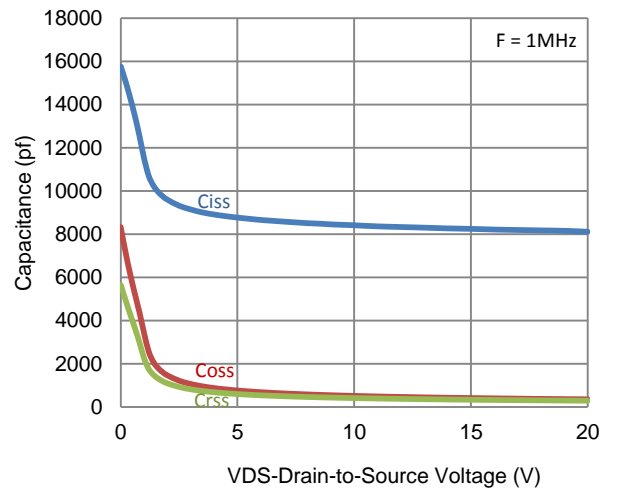
3. On-Resistance vs. Gate-to-Source Voltage



4. Drain-to-Source Forward Voltage

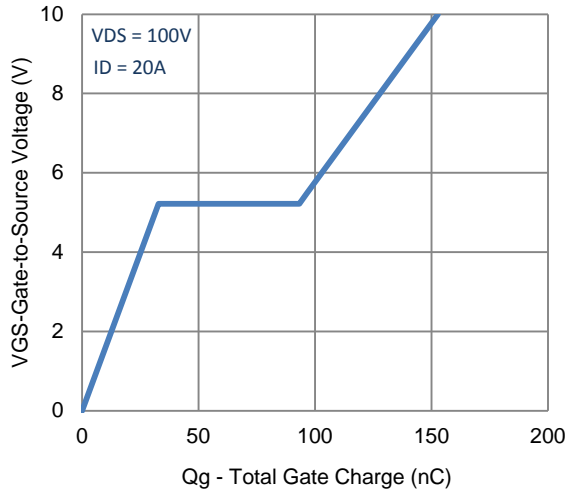


5. Output Characteristics

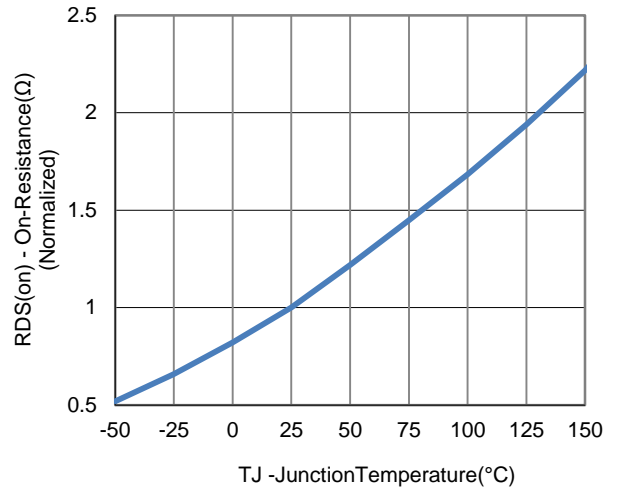


6. Capacitance

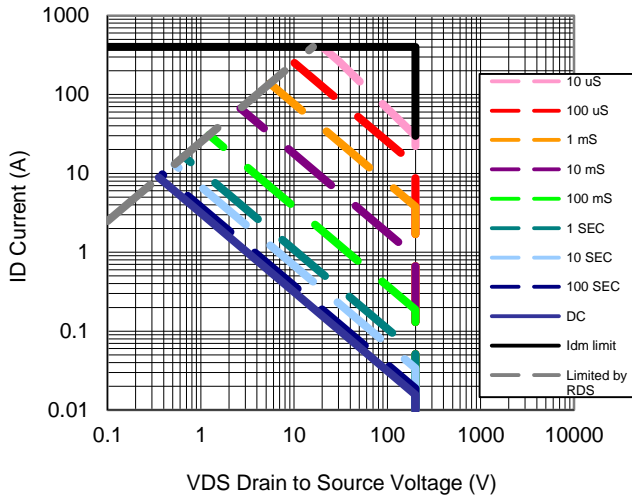
Typical Electrical Characteristics



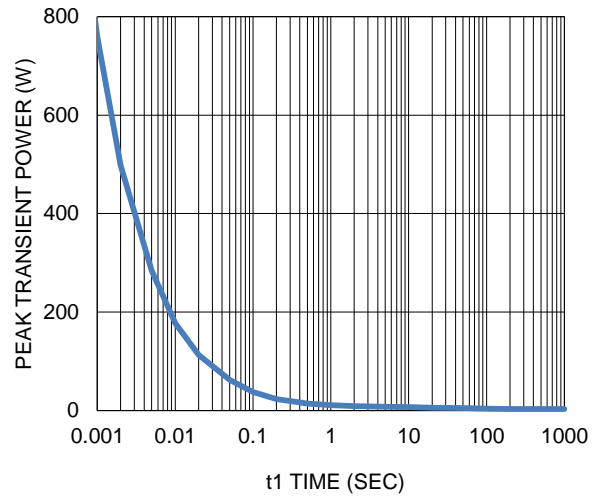
7. Gate Charge



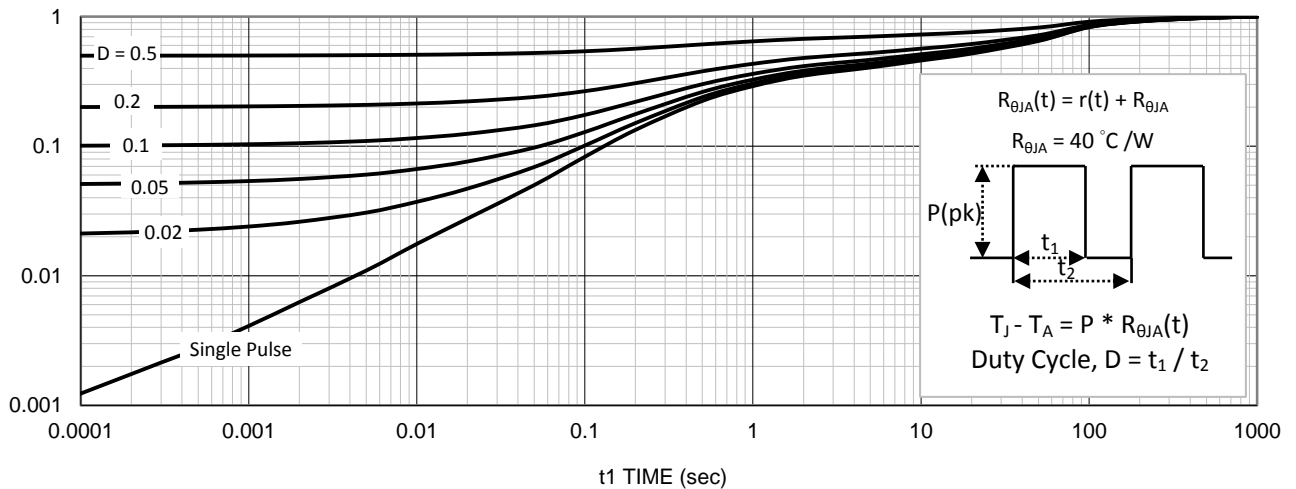
8. Normalized On-Resistance Vs Junction Temperature



9. Safe Operating Area

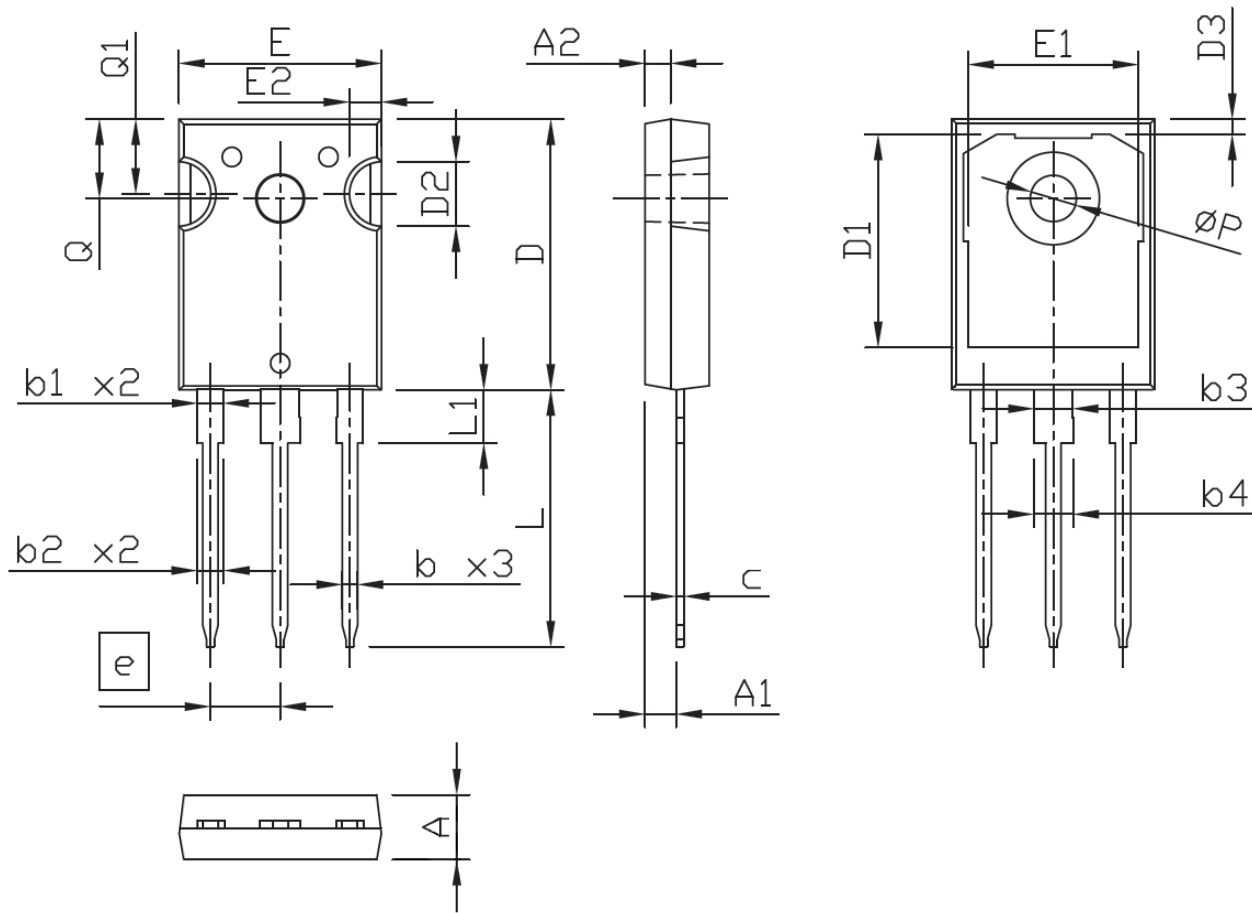


10. Single Pulse Maximum Power Dissipation



11. Normalized Thermal Transient Junction to Ambient

Package Information



SYMBOLS	DIMENSIONS IN MILLIMETERS		
	MIN	NOM	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
c	0,59	0,62	0,66
D	20,90	21,00	21,10
D1	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
ØP	3,55	3,60	3,65