

30V N-Channel Enhancement Mode MOSFET

$V_{DS}=30V$

$R_{DS(ON)}, V_{GS}@10V, I_{DS}@30A = 8.5m\Omega$

$R_{DS(ON)}, V_{GS}@4.5V, I_{DS}@20A = 13m\Omega$

FEATURES

Advanced trench process technology

High density cell design for ultra low on-resistance

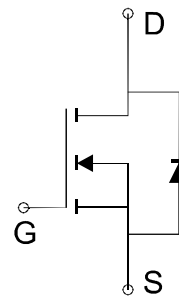
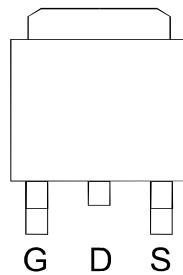
Specially designed for DC/DC converters and motor drivers

Fully characterized avalanche voltage and current

PIN CONFIGURATION

(TO-252)

Top View



Absolute Maximum Ratings ($T_A=25^\circ C$ Unless Otherwise Noted)

Parameter	Symbol	Limit	Unit	
Drain-Source Voltage	V_{DSS}	30	V	
Gate-Source Voltage	V_{GSS}	± 20	V	
Continuous Drain Current	I_D	50	A	
Pulsed Drain Current	I_{DM}	100	A	
Maximum Power Dissipation	P_D	$T_A=25^\circ C$	50	W
		$T_A=70^\circ C$	23	
Operating Junction and Storage Temperature Range	T_J, T_{stg}	-55 to 150	$^\circ C$	
Avalanche Energy with Single Pulse ($L=0.5mH, R_g=25\Omega$)	E_{AS}	110	mJ	
Thermal Resistance-Junction to Ambient*	$R_{\theta JA}$	$T \leq 10$ sec	15	$^\circ C/W$
		Steady State	40	
Thermal Resistance-Junction to Case	$R_{\theta JC}$	20	$^\circ C/W$	

*The device mounted on 1in² FR4 board with 2 oz copper

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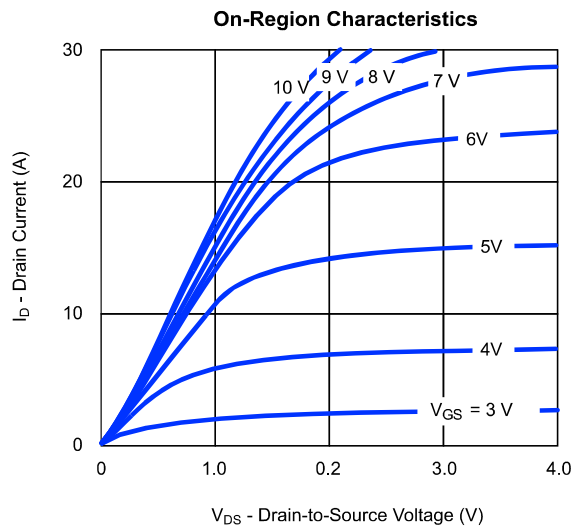
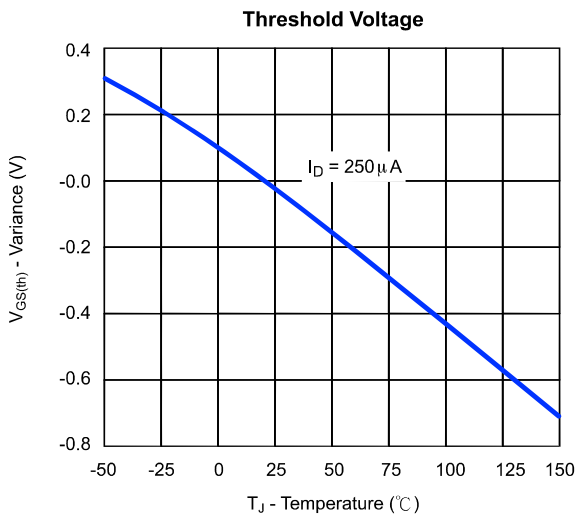
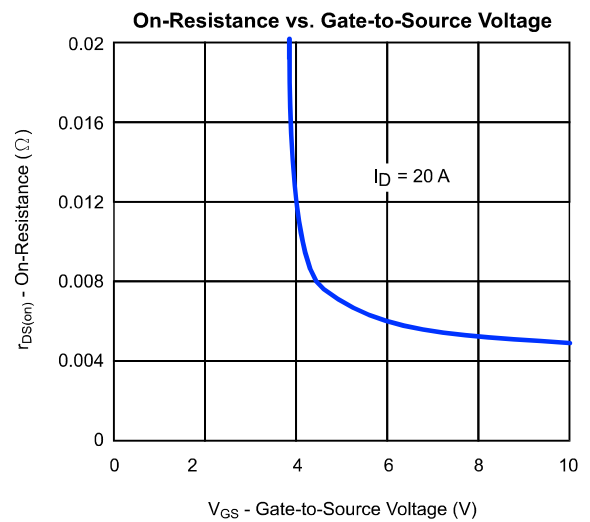
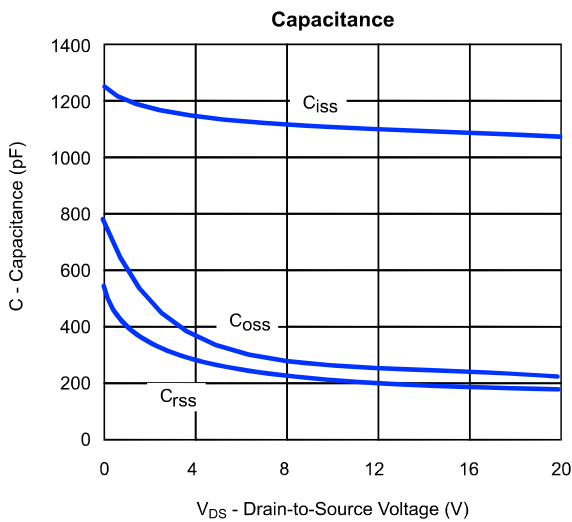
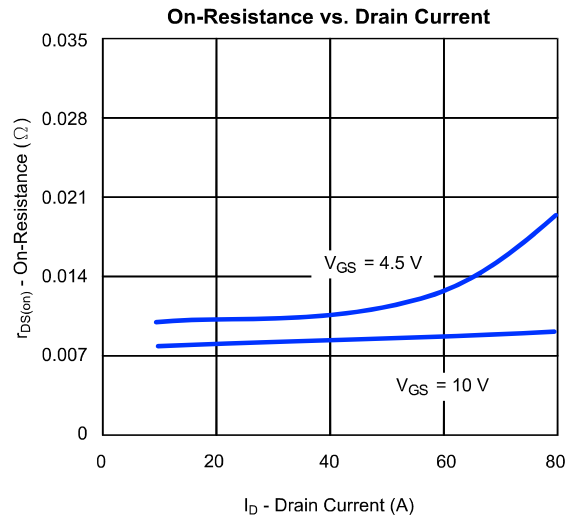
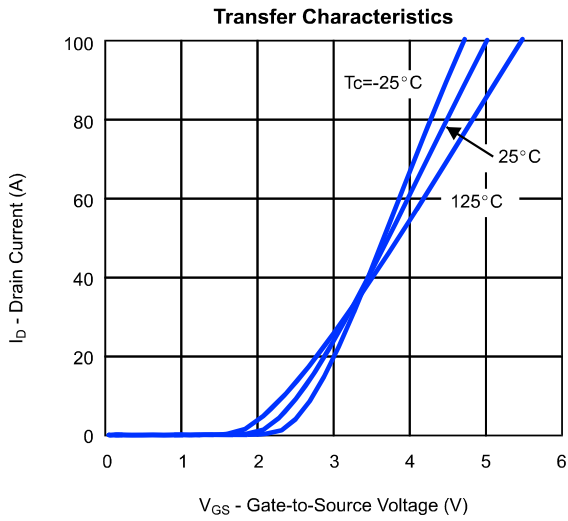
Electrical Characteristics (T_A=25°C Unless Otherwise Specified)

Symbol	Parameter	Limit	Min	Typ	Max	Unit
STATIC						
BV _{DSS}	Drain-Source Breakdown Voltage	V _{GS} =0V, I _D =250 μA	30			V
V _{GS(th)}	Gate Threshold Voltage	V _{DS} =V _{GS} , I _D =250 μA	1	1.6	3	V
I _{GSS}	Gate-Body Leakage	V _{DS} =0V, V _{GS} =±20V			±100	nA
I _{DSS}	Zero Gate Voltage Drain Current	V _{DS} =24V, V _{GS} =0V			1	μA
R _{DS(ON)}	Drain-Source On-Resistance	V _{GS} =10V, I _D =30A		6.5	8.5	mΩ
		V _{GS} =4.5V, I _D =20A		10	13	
DYNAMIC						
Q _g	Total Gate Charge	V _{DS} =15V, V _{GS} =10V, I _D =35A		22	25	nC
Q _{gs}	Gate-Source Charge			4.5		
Q _{gd}	Gate-Drain Charge			4		
C _{iss}	Input Capacitance	V _{DS} =15V, V _{GS} =0V, f=1MHz		1100	1300	pF
C _{oss}	Output Capacitance			240		
C _{rss}	Reverse Transfer Capacitance			90		
R _g	Gate Resistance	V _{DS} =0V, V _{GS} =0V, f=1MHz		2.5		Ω
t _{d(on)}	Turn-On Delay Time	R _L =15Ω, V _{GEN} =10V, I _D =1A V _{DD} =15V, R _G =24Ω		13	17	ns
t _r	Turn-On Rise Time			10	13	
t _{d(off)}	Turn-Off Delay Time			46	58	
t _f	Turn-Off Fall Time			7	10	
SOURCE-DRAIN DIODE						
I _s	Max.Diode Forward Current				20	A
V _{SD}	Diode Forward Voltage	I _s =20A, V _{GS} =0V		0.87	1.5	V

Note: Pulse test: pulse width ≤ 300μs, duty cycle ≤ 2%

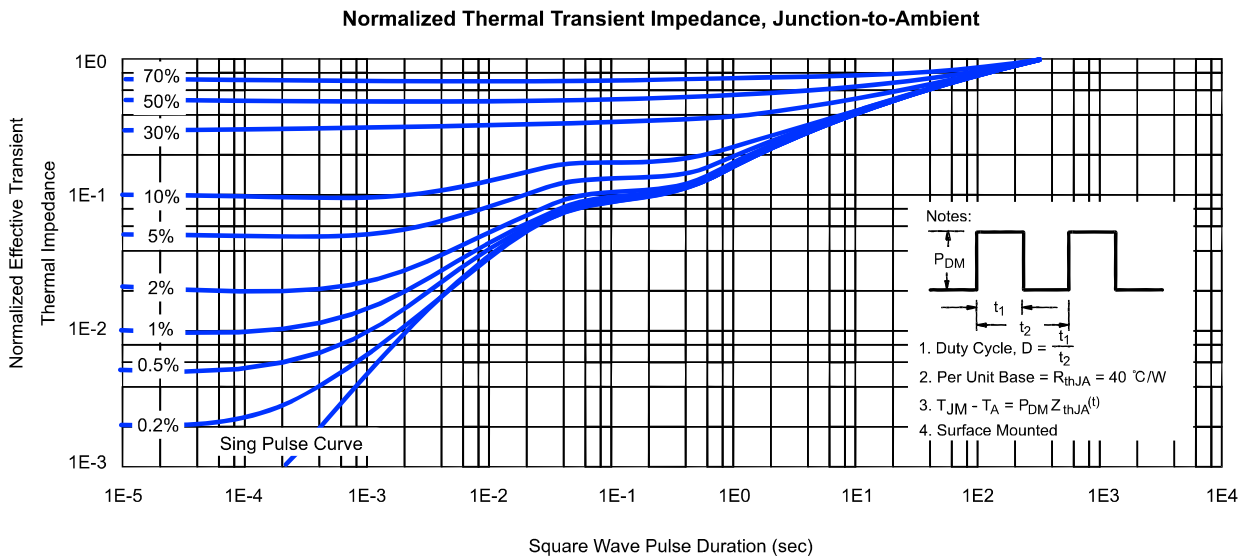
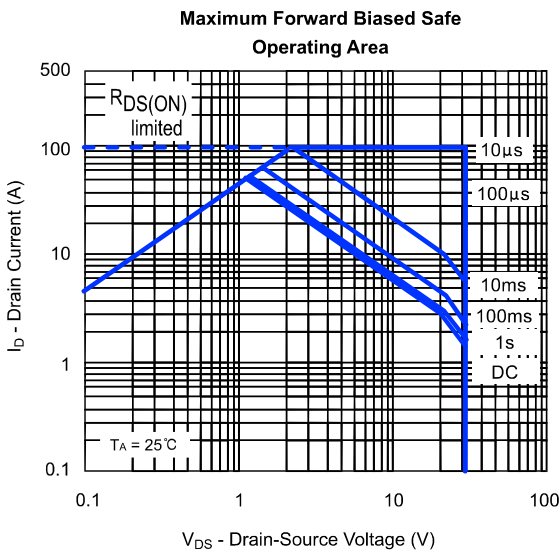
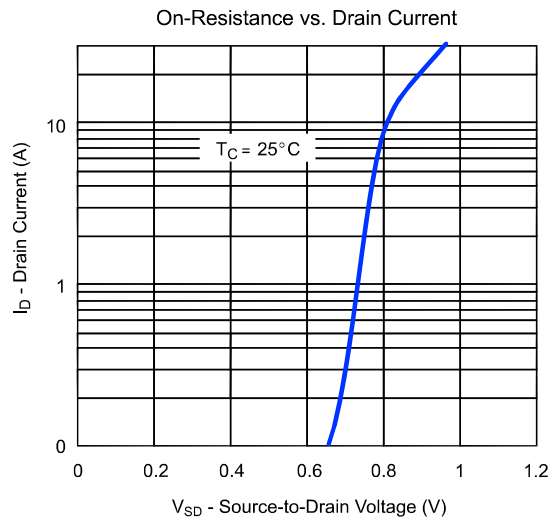
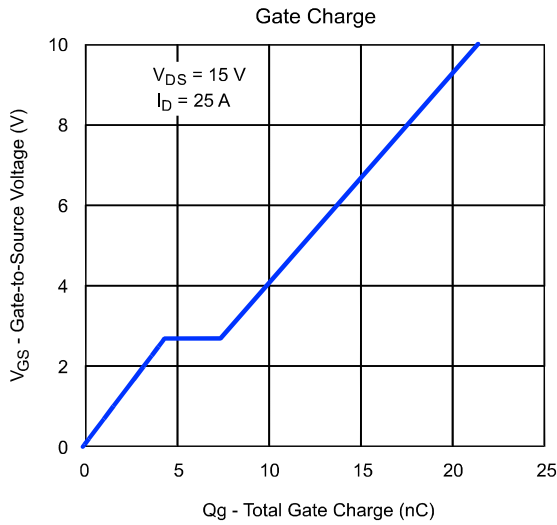
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Typical Characteristics (T_J = 25°C Noted)

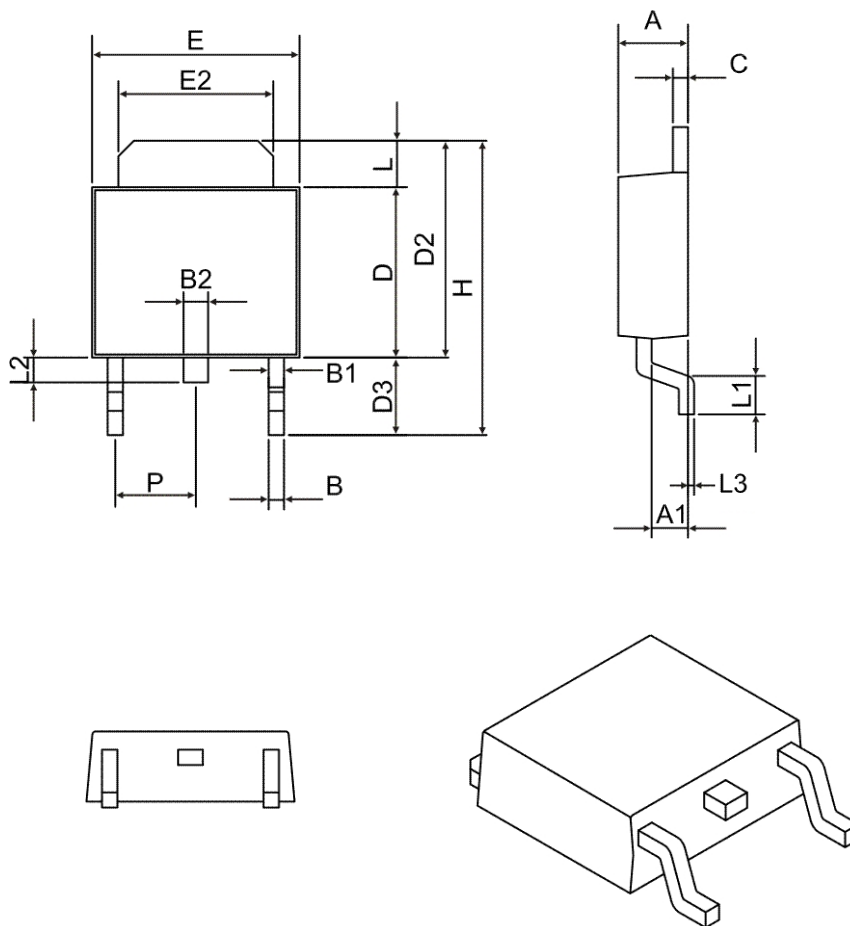


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Typical Characteristics (T_J = 25°C Noted)



TO-252 Package Outline



SYMBOL	MILLIMETERS (mm)	
	MIN	MAX
A	2.00	2.50
A1	0.90	1.30
B	0.50	0.85
B1	0.50	0.80
B2	0.50	1.00
C	0.40	0.60
D	5.20	5.70
D2	6.50	7.30
D3	2.20	3.00
H	9.50	10.50
E	6.30	6.80
E2	4.50	5.50
L	1.30	1.70
L1	0.90	1.70
L2	0.50	1.10
L3	0	0.30
P	2.00	2.80