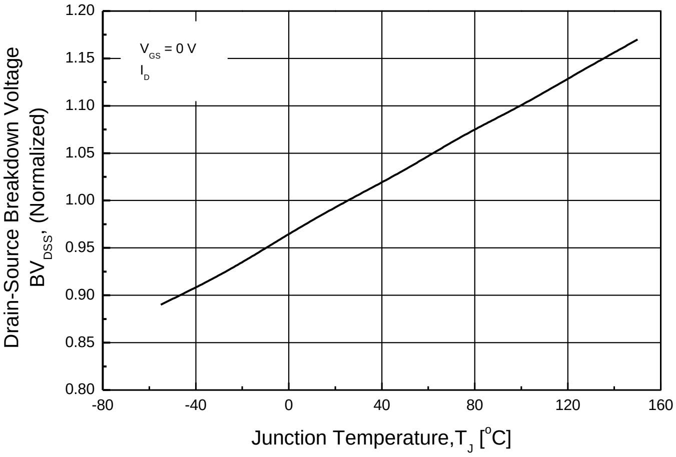
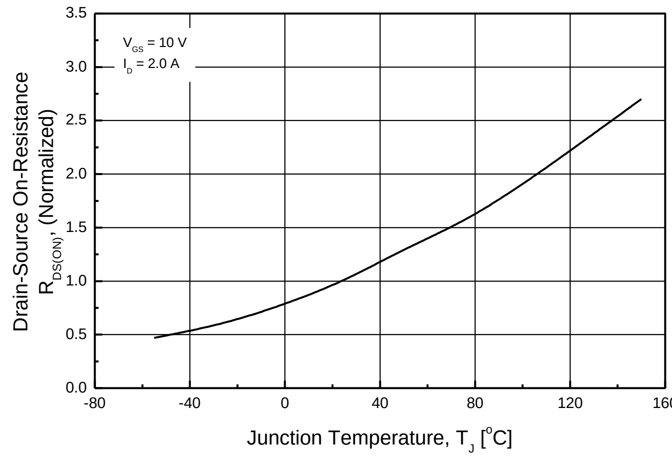
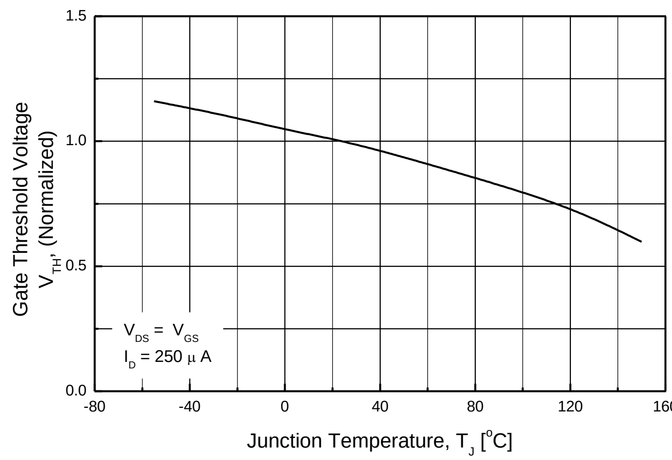
Electrical Characteristics : T_C=25 , unless otherwise noted

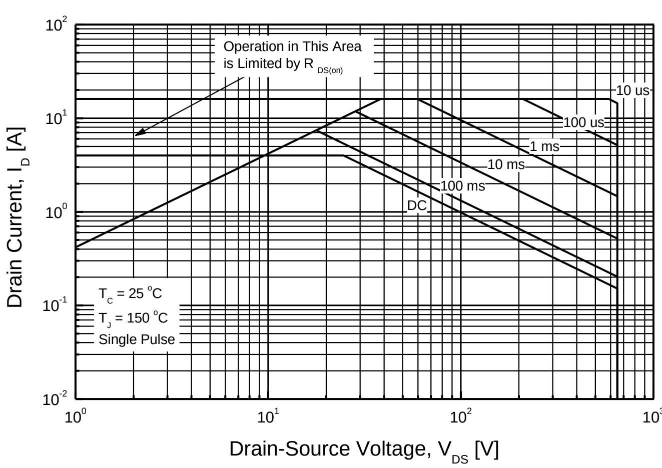
Parameter	Symbol	Test condition	Min	Typ	Max	Units
OFF						
Drain-Source Breakdown Voltage	BV_{DSS}	V_{GS} = 0 V, I_D = 250 µA	650	--	--	V
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS} = 650 V, V_{GS} = 0 V	--	--	1	µA
		V_{DS} = 520 V, T_C = 125°C	--	--	10	µA
Forward Gate-Source Leakage Current	I_{GSSF}	V_{GS} = 30 V, V_{DS} = 0 V	--	--	100	µA
Reverse Gate-Source Leakage Current	I_{GSSR}	V_{GS} = -30 V, V_{DS} = 0 V	--	--	-100	µA
ON						
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS} = V_{GS}, I_D = 250 µA	2	--	4	V
Drain-Source On-Resistance	$R_{DS(on)}$	V_{GS} = 10 V, I_D = 2.0 A	--	2.0	2.4	Ω
Forward Transconductance (Note 4)	g_{FS}	V_{DS} = 30 V, I_D = 2.0 A	--	6.2	--	S
DYNAMIC						
Input Capacitance	C_{iss}	V_{DS} = 25 V, V_{GS} = 0 V,	--	745	--	pF
Output Capacitance	C_{oss}	f = 1.0 MHz	--	67	--	pF
Reverse Transfer Capacitance	C_{rss}		--	8.9	--	pF
SWITCHING						
Turn-On Delay Time (Note 4,5)	$t_{d(on)}$	V_{DD} = 325 V, I_D = 4.0 A,	--	14	--	ns
Turn-On Rise Time (Note 4,5)	t_r	R_G = 25	--	22	--	ns
Turn-Off Delay Time (Note 4,5)	$t_{d(off)}$		--	72	--	ns
Turn-Off Fall Time (Note 4,5)	t_f		--	19	--	ns
Total Gate Charge (Note 4,5)	Q_g	V_{DS} = 520V, I_D = 4.0 A,	--	16	--	nC
Gate-Source Charge (Note 4,5)	Q_{gs}	V_{GS} = 10 V	--	2.5	--	nC
Gate-Drain Charge (Note 4,5)	Q_{gd}		--	6	--	nC
SOURCE DRAIN DIODE						
Maximum Continuous Drain-Source Diode Forward Current	I_S	----	--	--	4	A
Maximum Pulsed Drain-Source Diode Forward Current	I_{SM}	----	--	--	16	A
Drain-Source Diode Forward Voltage	V_{SD}	V_{GS} = 0 V, I_S = 4.0 A	--	--	1.5	V
Reverse Recovery Time (Note 4)	t_{rr}	V_{GS} = 0 V, I_S = 4.0 A	--	326	--	ns
Reverse Recovery Charge (Note 4)	Q_{rr}	dI_F / dt = 100 A/µs	--	1.8	--	µC

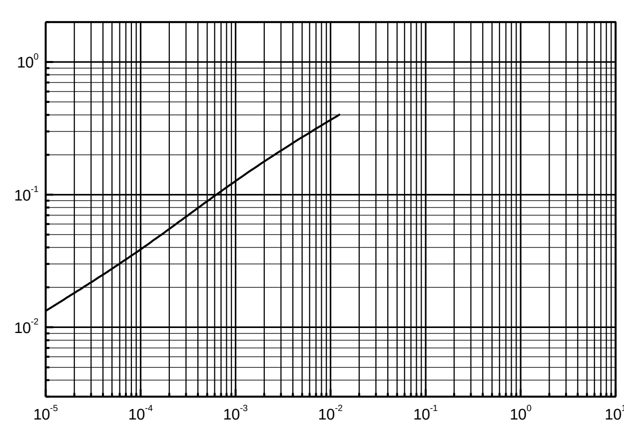
Note :
1. Repeated rating : Pulse width limited by safe operating area
2. L=28mH, I_{AS} = 4A, V_{DD} = 50V, R_G = 25 , Starting T_J= 25
3 I_{SD} 4A, di/dt µs , V_{DD} $_{DS}$, Starting T_J= 25
µ
5. Essentially Independent of Operating Temperature Typical Characteristics


V_{GS} = 0 V
I_D
Drain-Source Breakdown Voltage
BV_{DSS}, (Normalized)
Junction Temperature, T_J [°C]
1.20
1.15
1.10
1.05
1.00
0.95
0.90
0.85
0.80
-80
-40
0
40
80
120
160


V_{GS} = 10 V
I_D = 2.0 A
Drain-Source On-Resistance
$R_{DS(ON)}$, (Normalized)
Junction Temperature, T_J [°C]
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
-80
-40
0
40
80
120
160


Gate Threshold Voltage
V_{TH}, (Normalized)
V_{DS} = V_{GS}
I_D = 250 μ A
Junction Temperature, T_J [°C]
1.5
1.0
0.5
0.0
-80
-40
0
40
80
120
160


Operation in This Area
is Limited by R $_{DS(on)}$
10 us
100 us
1 ms
10 ms
100 ms
DC
T_C = 25 °C
T_J = 150 °C
Single Pulse
Drain Current, I_D [A]
Drain-Source Voltage, V_{DS} [V]
10^2
10^1
10^0
10^{-1}
10^{-2}
10^0
10^1
10^2
10^3


10^0
10^{-1}
10^{-2}
10^{-5}
10^{-4}
10^{-3}
10^{-2}
10^{-1}
10^0
10^1

TO-252 (D-PAK) MECHANICAL DATA