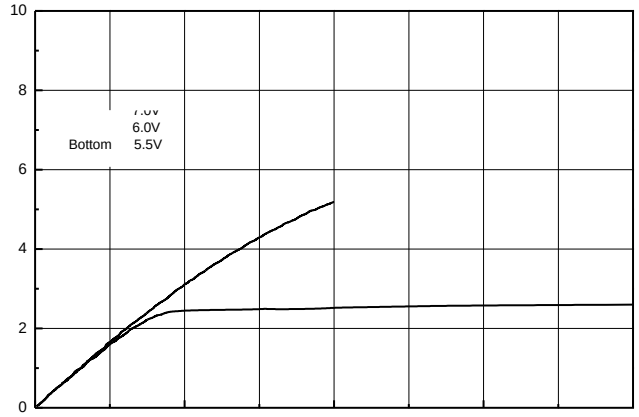
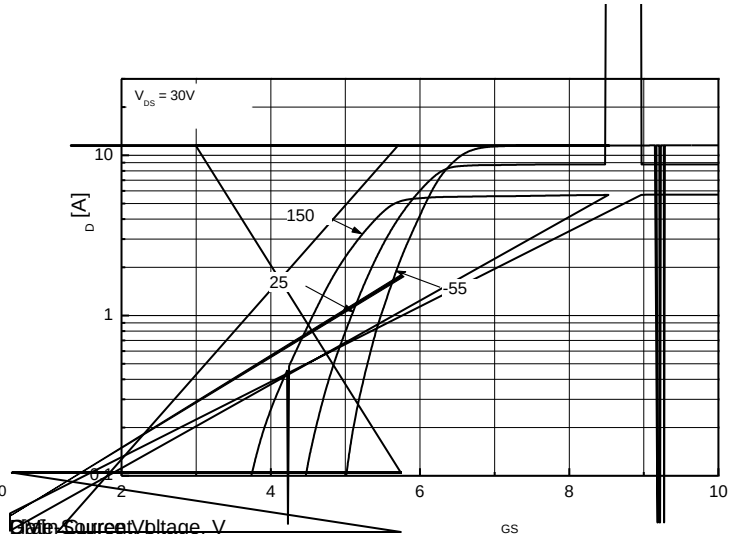
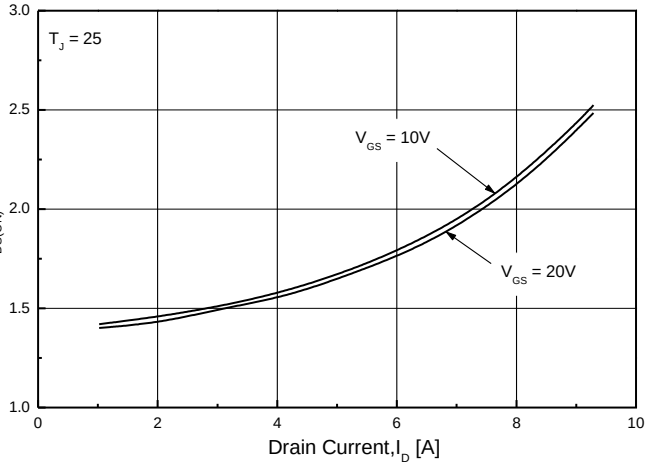
Electrical Characteristics : T_C=25 , unless otherwise noted

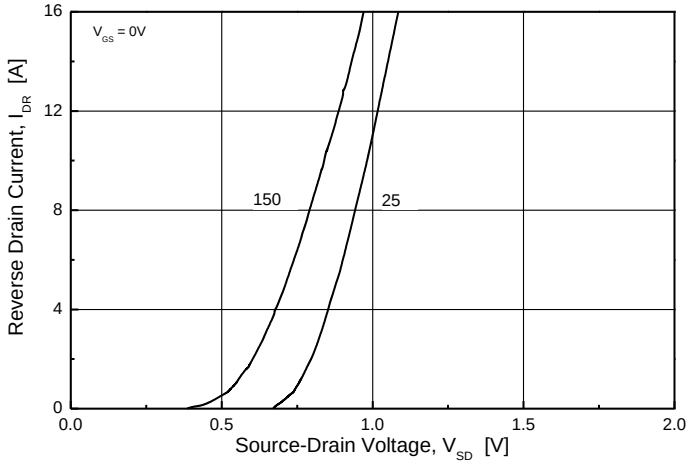
Parameter	Symbol	Test condition	Min	Typ	Max	Units
OFF						
Drain-Source Breakdown Voltage	BV_{DSS}	V_{GS} = 0 V, I_D = 250 µA	600	--	--	V
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS} = 600 V, V_{GS} = 0 V	--	--	1	µA
		V_{DS} = 480 V, T_C = 125°C	--	--	10	µA
Forward Gate-Source Leakage Current	I_{GSSF}	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	3	--	5	V
Drain-Source On-Resistance	$R_{DS(on)}$	V_{GS} = 10 V, I_D = 2.1 A	--	1.7	2.1	Ω
Forward Transconductance (Note 4)	g_{FS}	V_{DS} = 30 V, I_D = 2.1 A	--	5	--	S
DYNAMIC						
Input Capacitance	C_{iss}	V_{DS} = 25 V, V_{GS} = 0 V, f = 1.0 MHz	--	658	--	pF
Output Capacitance	C_{oss}		--	72	--	pF
Reverse Transfer Capacitance	C_{rss}		--	9	--	pF
SWITCHING						
Turn-On Delay Time (Note 4,5)	$t_{d(on)}$	V_{DD} = 300 V, I_D = 4.2 A, R_G = 25 , V_{GS} = 10 V	--	19	--	ns
Turn-On Rise Time (Note 4,5)	t_r		--	25	--	ns
Turn-Off Delay Time (Note 4,5)	$t_{d(off)}$		--	34	--	ns
Turn-Off Fall Time (Note 4,5)	t_f		--	19	--	ns
Total Gate Charge (Note 4,5)	Q_g	V_{DS} = 480 V, I_D = 4.2 A, V_{GS} = 10 V	--	14	--	nC
Gate-Source Charge (Note 4,5)	Q_{gs}		--	3	--	nC
Gate-Drain Charge (Note 4,5)	Q_{gd}		--	7	--	nC
SOURCE DRAIN DIODE						
Maximum Continuous Drain-Source Diode Forward Current	I_S	----	--	--	4.2	A
Maximum Pulsed Drain-Source Diode Forward Current	I_{SM}	----	--	--	16.8	A
Drain-Source Diode Forward Voltage	V_{SD}	V_{GS} = 0 V, I_S = 4.2 A	--	--	1.5	V
Reverse Recovery Time (Note 4)	t_{rr}	V_{GS} = 0 V, I_S = 4.2 A, dI_F / dt = 100 A/µs	--	283	--	ns
Reverse Recovery Charge (Note 4)	Q_{rr}		--	1.6	--	µC

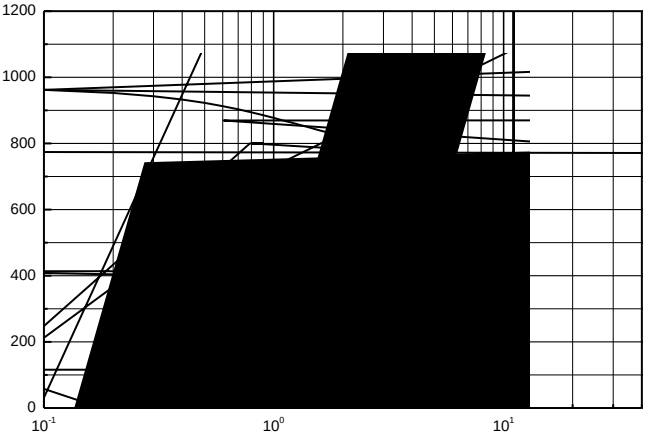
Note :
1. Repeated rating : Pulse width limited by safe operating area
2. L=22.6mH, I_{AS} = 4.2A, V_{DD} = 50V, R_G = 25 , Starting T_J= 25
3 I_{SD} 4.2A, di/dt µs , V_{DD} $_{DS}$, Starting T_J= 25
µ
5. Essentially Independent of Operating Temperature Typical Characteristics

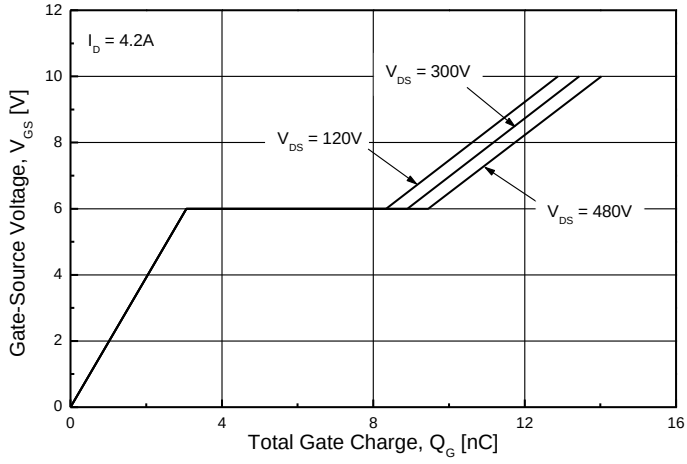

Bottom 5.5V
6.0V

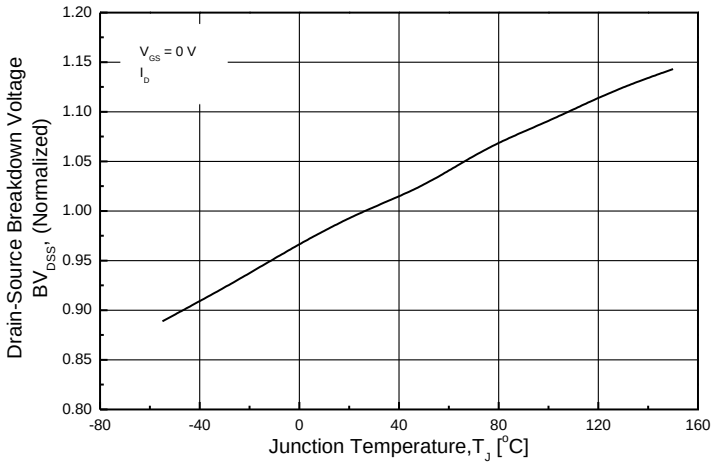

V_DS = 30V
150
25
-55
I_D [A]

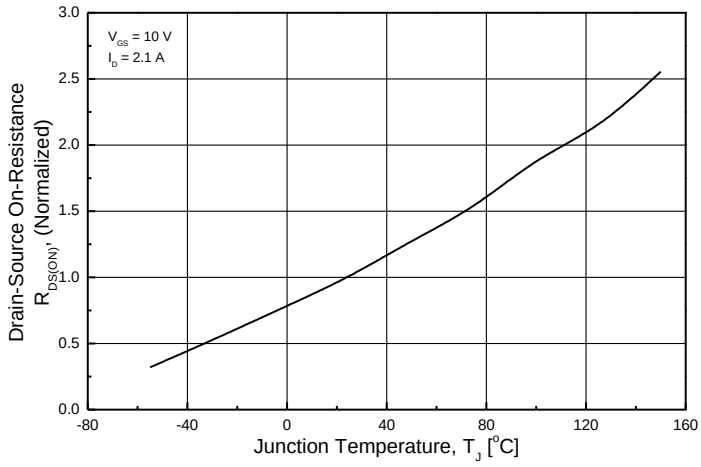

T_J = 25
V_GS = 10V
V_GS = 20V
Drain-Source On-Resistance
R_DS(ON)
Drain Current,I_D [A]

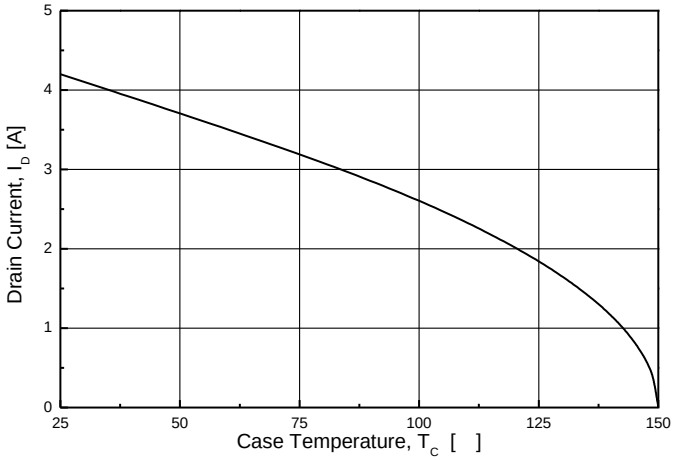

V_GS = 0V
150
25
Reverse Drain Current, I_DR [A]
Source-Drain Voltage, V_SD [V]

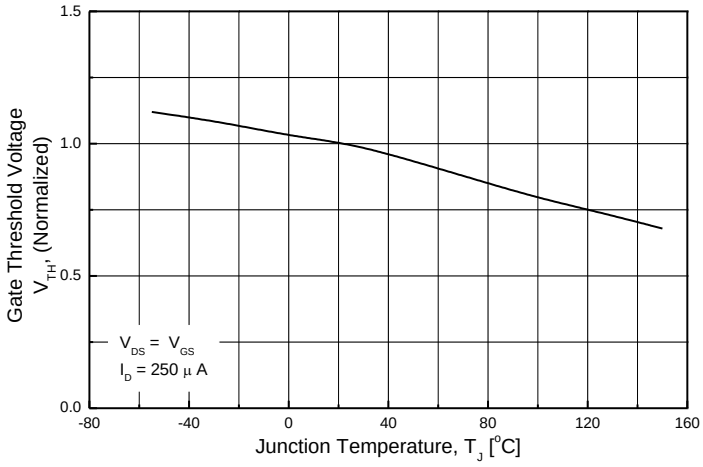


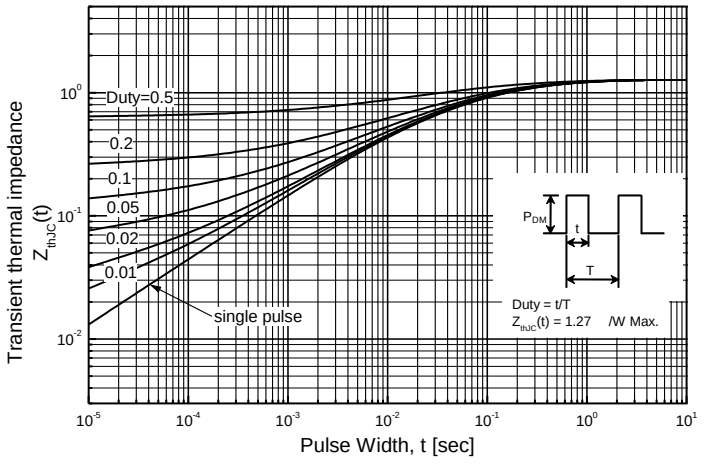

I_D = 4.2A
V_DS = 300V
V_DS = 120V
V_DS = 480V
Gate-Source Voltage, V_GS [V]
Total Gate Charge, Q_G [nC]

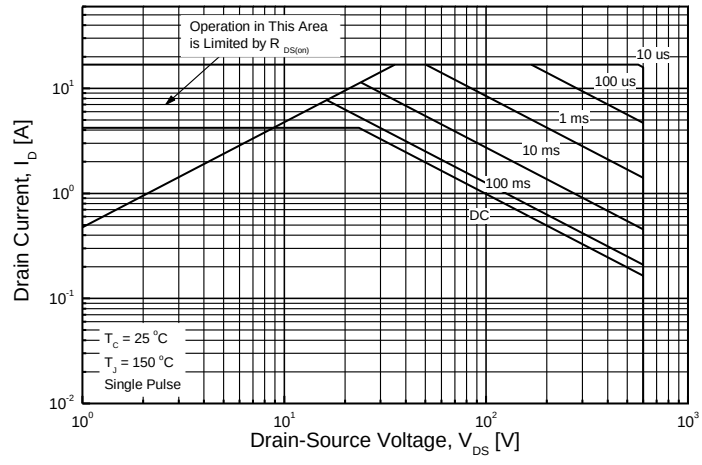

Drain-Source Breakdown Voltage
BV_DSS, (Normalized)
V_GS = 0 V
I_D
Junction Temperature,T_J [°C]


Drain-Source On-Resistance
R_DS(ON), (Normalized)
V_GS = 10 V
I_D = 2.1 A
Junction Temperature, T_J [°C]

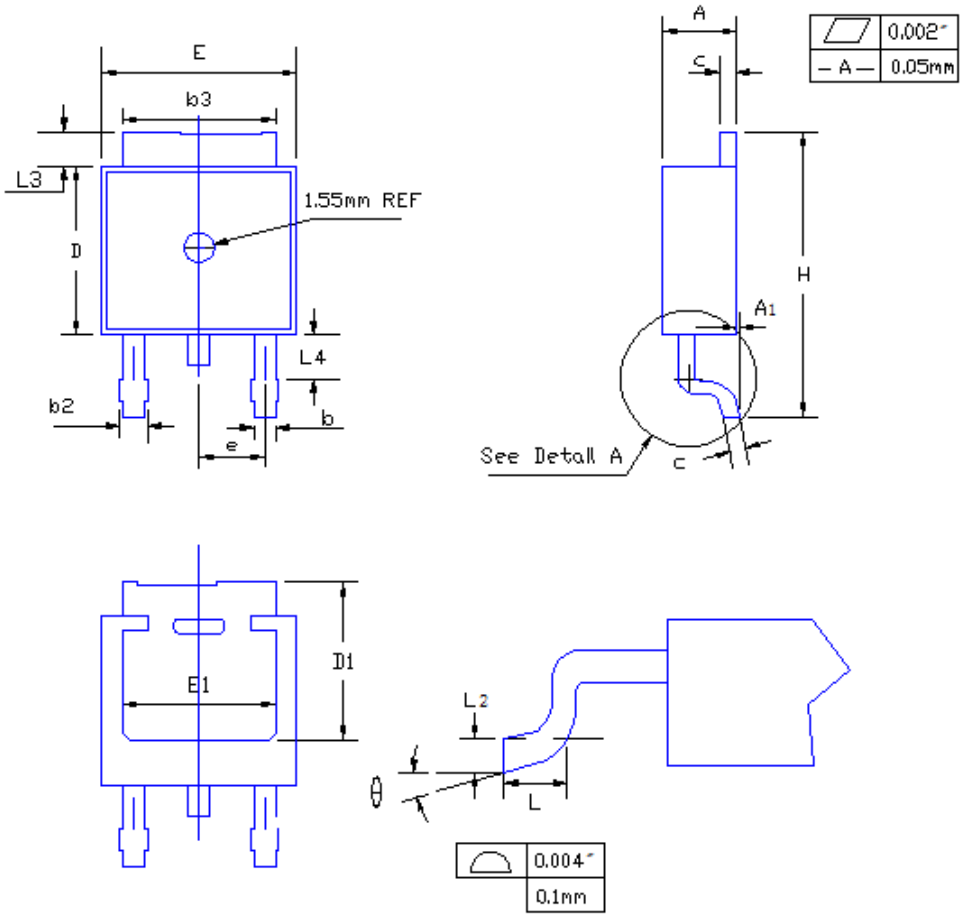

Drain Current, I_D [A]
Case Temperature, T_C [ ]


Gate Threshold Voltage
V_TH, (Normalized)
V_DS = V_GS
I_D = 250 μ A
Junction Temperature, T_J [°C]


Transient thermal impedance
Z_thJC(t)
Duty=0.5
0.2
0.1
0.05
0.02
0.01
single pulse
P_DM
t
T
Duty = t/T
Z_thJC(t) = 1.27 /W Max.
Pulse Width, t [sec]

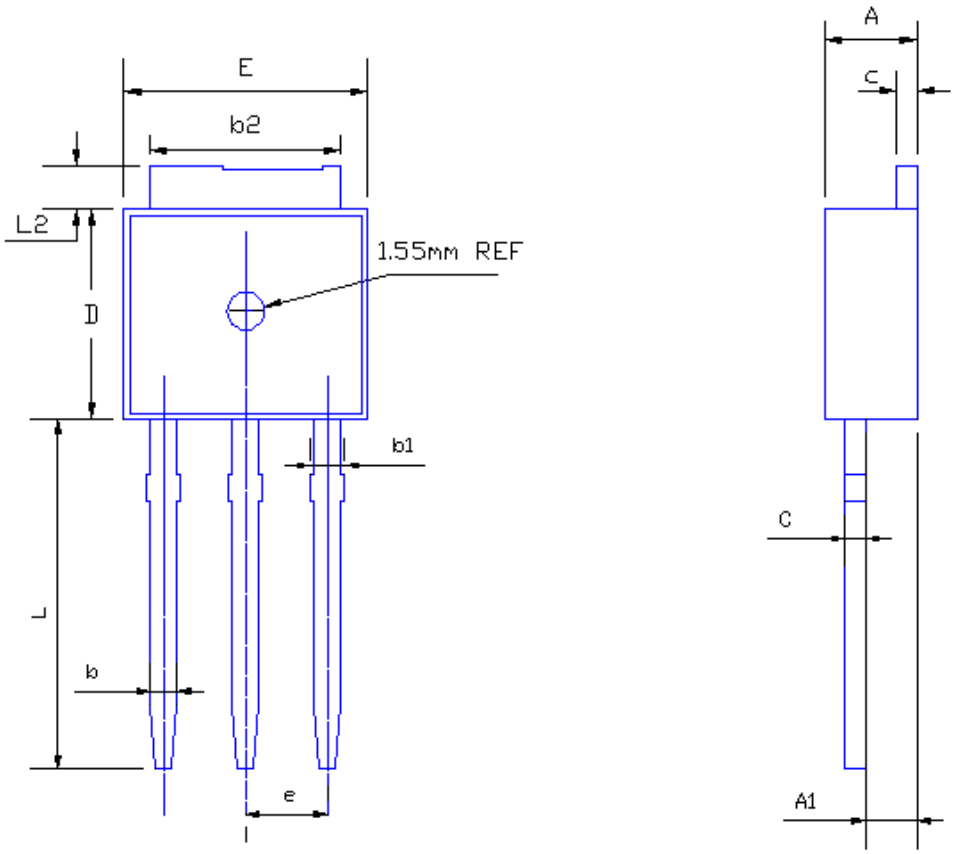

Operation in This Area
is Limited by R DS(on)
10 us
100 us
1 ms
10 ms
100 ms
DC
Drain Current, I_D [A]
T_C = 25 °C
T_J = 150 °C
Single Pulse
Drain-Source Voltage, V_DS [V]

TO-252 (D-PAK) MECHANICAL DATA



SYMBOL	MILLIMETERS	
	MIN	MAX
A	2.19	2.38
A1	–	0.13
b	0.64	0.89
b2	0.84	1.14
b3	5.21	5.46
c	0.46	0.61
D	5.97	6.22
D1	5.21	—
E	6.35	6.73
E1	4.83	—
e	2.29BSC	
H	9.65	10.41
L	1.40	1.78
L2	0.51BSC	
L3	0.89	1.27
L4	0.64	1.01
θ	0	8

TO-251 (I-PAK) MECHANICAL DATA



SYMBOL	MILLIMETERS	
	MIN	MAX
A	2.19	2.38
A1	1.04	1.23
b	0.64	0.89
b1	0.84	1.14
b2	5.23	5.48
c	0.46	0.61
D	5.91	6.28
E	6.21	6.59
e	2.28 TYP	
L	8.89	9.65
L2	0.89	1.27