

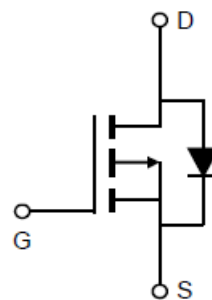
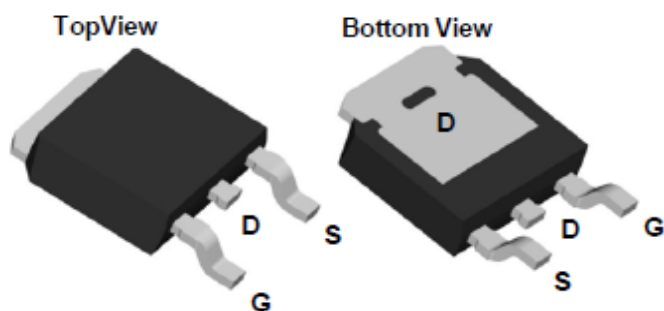
Features

- ◆ $V_{DS} = -40V$
- ◆ $I_D = -40\text{ A}$
- ◆ $R_{DS(ON)} @ V_{GS} = -10V, \text{ TYP } 13.5\text{ m}\Omega$
- ◆ $R_{DS(ON)} @ V_{GS} = -4.5V, \text{ TYP } 19.5\text{ m}\Omega$

General Description

- ◆ Engine Management Systems
- ◆ Body Control Electronics
- ◆ DC-DC Converters

Pin Configurations



TO-252

Maximum Ratings($T_a=25^\circ\text{C}$ unless otherwise noted)

Parameter	Symbol	Value	Unit
Drain-Source Voltage	VDS	-40	V
Gate-Source Voltage	VGS	±20	
Continuous Drain Current	ID@TC=25℃	-40	A
Continuous Drain Current	ID@TC =100℃	-22	
Pulsed Drain Current ²	IDM	-140	
Single Pulse Avalanche Energy	EAS	57.8	mJ
Total Power Dissipation	PD@TA=25℃	40.3	W
Storage Temperature Range	TSTG	-55 to 150	℃
Operating Junction Temperature Range	TJ	-55 to 150	
Thermal Data			
Parameter	Symbol	Max.	Unit
Thermal Resistance Junction-ambient	RθJA	66	℃/W
Thermal Resistance Junction-Case	RθJC	3.1	

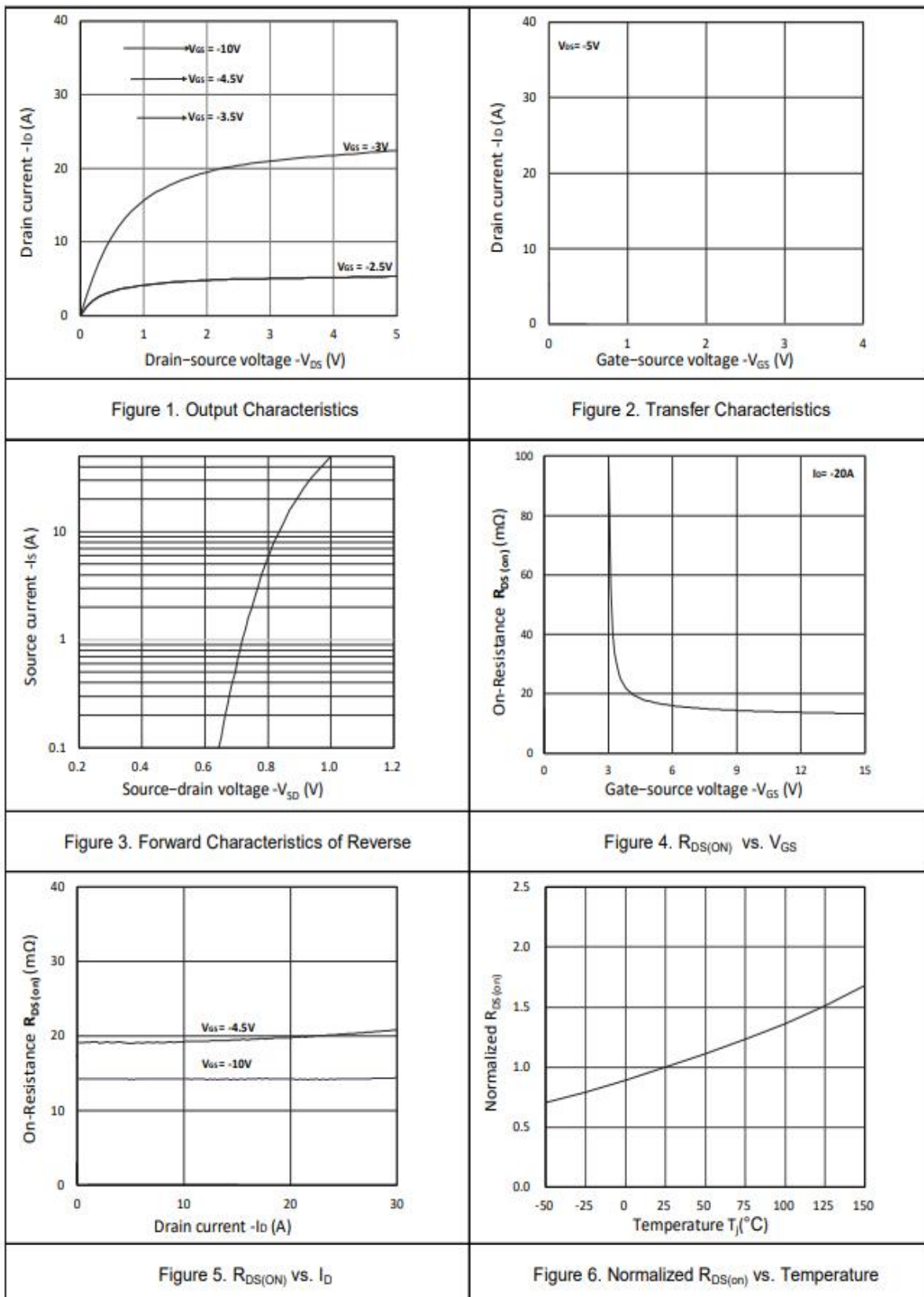
Electrical Characteristics(TJ=25°C unless otherwise noted)

Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
Static Parameters						
Drain-Source Breakdown Voltage	BVDSS	VGS = 0V, ID = -250μA	-40			V
Gate Threshold Voltage	VGS(th)	VDS =VGS, ID = -250μA	-1.0	-1.5	-2.2	V
Gate-Body leakage Current	IGSS	VDS =0V, VGS = ±20V			±100	nA
Zero Gate Voltage Drain Current	IDSS	VDS=-40V , VGS=0V , TJ=25℃			-1	μA
Static Drain-Source On-Resistance	RDS(on)	VGS = -10V, ID = -20A		13.5	19	mΩ
		VGS = -4.5V, ID = -15A		19.5	25	mΩ
Dynamic Parameters						
Input Capacitance	Ciss	VDS = -20V, VGS =0V, f =1MHz		2525		pF
Output Capacitance	Coss			190		pF
Reverse Transfer Capacitance	Crss			172		pF
Total Gate Charge	Qg	VGS = -10V,VDS = -20V, ID= -20A		35		nC
Gate Source Charge	Qgs			5.5		nC
Gate Drain Charge	Qgd			8		nC
Switching Parameters						
Turn-On DelayTime	td(on)	VGS = -10V, VDD = -20V, RG = 3Ω, ID= -20A		14.5		ns
Turn-On Rise Time	tr			20.2		ns
Turn-Off DelayTime	td(off)			32		ns
Turn-Off Fall Time	tf			10		ns
Drain-Source Diode Characteristics and Maximum Ratings						
Continuous Source Current ^{1,4}	IS	VG=VD=0V , Force Current			-40	A
Diode Forward Voltage ²	VSD	IS = -20A, VGS = 0V			-1.2	V

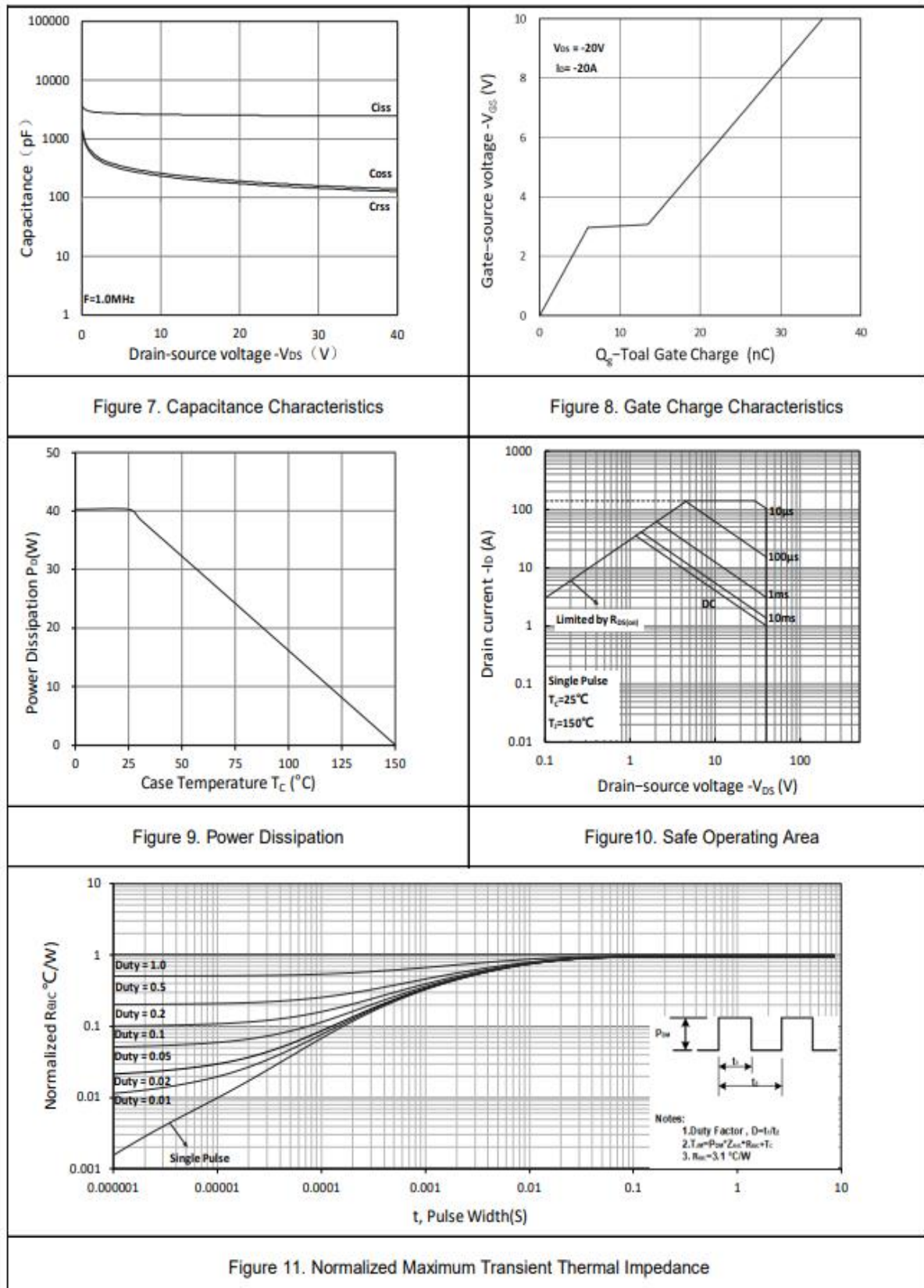
Note :

1. Repetitive Rating : Pulse width limited by maximum junction temperature.
2. Surface Mounted on FR4 Board, t < 5 sec.
3. Pulse Test : Pulse Width ≤ 300μs, Duty Cycle ≤ 2%.
4. Guaranteed by design, not subject to production testing.

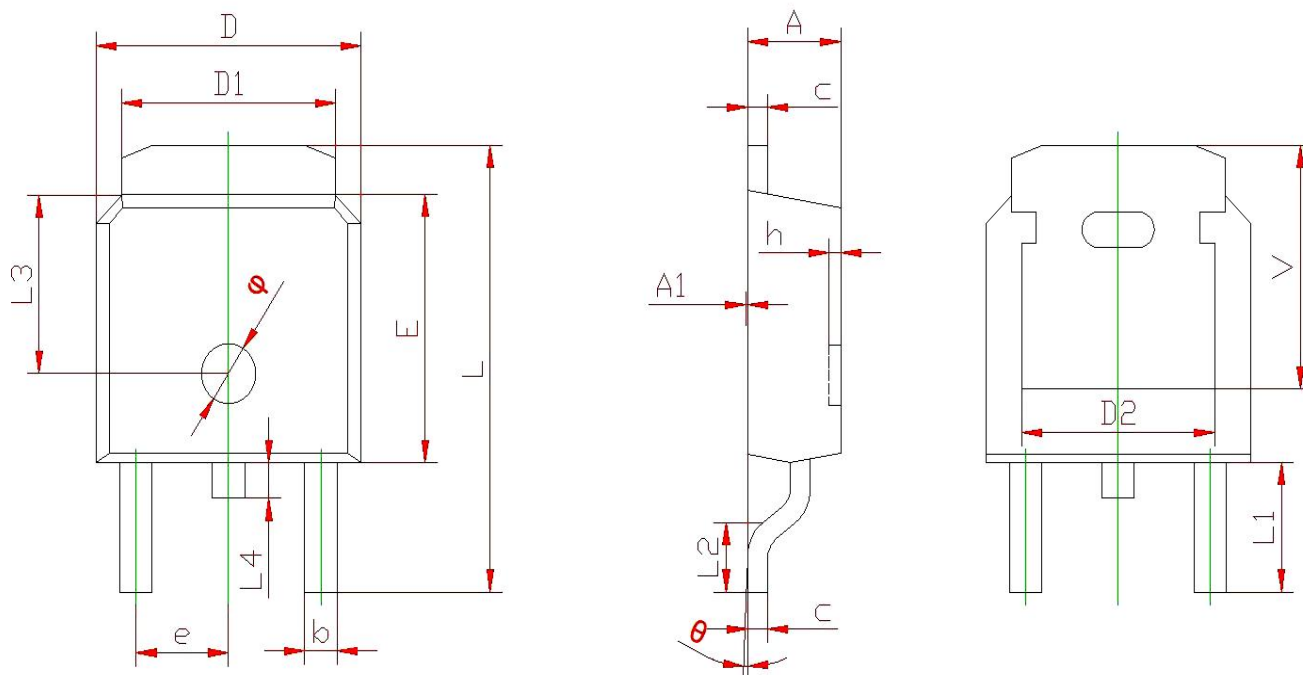
Typical Electrical and Thermal Characteristics



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TO-252 Package Outline Dimesions



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	2.200	2.400	0.087	0.094
A1	0.000	0.127	0.000	0.005
b	0.660	0.860	0.026	0.034
c	0.460	0.580	0.018	0.023
D	6.500	6.700	0.256	0.264
D1	5.100	5.460	0.201	0.215
D2	4.800 REF		0.189 REF	
E	6.000	6.200	0.236	0.244
e	2.186	2.386	0.086	0.094
L	9.800	10.400	0.386	0.409
L1	2.900 REF		0.114 REF	
L2	1.400	1.700	0.055	0.067
L3	4.000 REF		0.157 REF	
L4	0.600	1.000	0.024	0.039
Φ	1.100	1.300	0.043	0.051
θ	0°	8°	0°	8°
h	0.000	0.300	0.000	0.012
V	5.5000 REF		0.217 REF	