TM35P03DF

P -Channel Enhancement Mosfet

General Description

- Low $R_{DS(ON)}$
- RoHS and Halogen-Free Compliant

Applications

- Load switch
- PWM

General Features

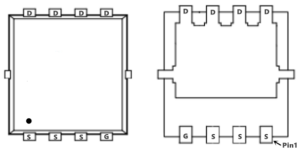
V_{DS} =- 30V I_D =-35A

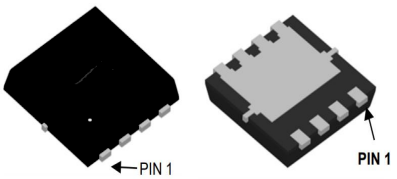
$R_{DS(ON)}$ = 16mΩ(typ.) @ V_{GS} =-10V

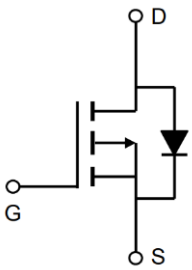
100% UIS Tested
100% R_g Tested

Green Product

DF:DFN3.3x3.3-8L







Marking:35P03

Absolute Maximum Ratings (T_A= 25°C unless otherwise noted)

Symbol	Parameter		Rating	Unit
Common Ratings				
V_{DSS}	Drain-Source Voltage		-30	V
V_{GSS}	Gate-Source Voltage		±20	
I_D	Continuous Drain Current	Tc=25°C	-35	A
		Tc=100°C	-21	
I_{DM}	Pulsed Drain Current *	Tc=25°C	-105	A
I_S	Diode Continuous Forward Current	Tc=25°C	-16	A
P_D	Power Dissipation	T_C=25°C	28.9	W
		T_C=100°C	11.9	
I_{AS} [a]	Single pulsed avalanlce current	L=0.5mH	14	A
E_{AS} [a]	Single pulsed avalanlce energy	L=0.5mH	49	mJ
$R_{\theta JC}$	Thermal Resistance-Junction to Case [b]	Steady State	4.2	°C/W
$R_{\theta JA}$	Thermal Resistance-Junction to Ambient	t≤10S	40	°C/W
		Stesdy State	75	
T_{STG}, T_j	Storage Temperature Range		-55 to 150	°C

Note *：Current limited by bond wire.

Note a：UIS tested and pulse width are limited by maximum junction temperature 150°C (initial temperature T_J = 25°C).

Note b：t＜10s.

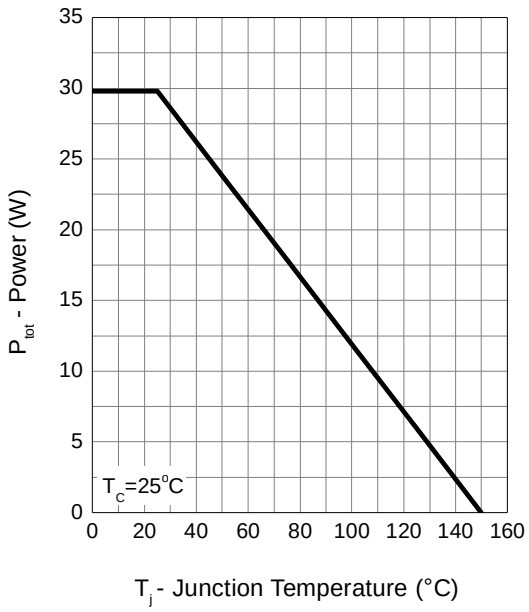
Electrical Characteristics (T_A= 25°C unless otherwise noted)

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
Static Characteristics						
BV_{DSS}	Drain-Source Breakdown Voltage	V_{GS}=0V, I_{DS}=-250μA	-30	-	-	V
I_{DSS}	Zero Gate Voltage Drain Current	V_{DS} =-24V, V_{GS}=0V	-	-	-1	μA
		Tj=85°C	-	-	-30	
$V_{GS(th)}$	Gate Threshold Voltage	V_{DS} =V_{GS}, I_{DS}=-250μA	-1.0	-1.5	-2.0	V
I_{GSS}	Gate Leakage Current	V_{GS}=±25V, V_{DS}=0V	-	-	±100	nA
$R_{DS(ON)}$ [c]	Drain-Source On-state Resistance	V_{GS}=-10V, I_{DS}=-16A	-	16	21	mΩ
		V_{GS}=-4.5V, I_{DS}=-8A	-	22	32	
Body Diode Characteristics						
V_{SD} [c]	Diode Forward Voltage	I_{SD}=-1A, V_{GS}=0V	-	-0.7	-1.0	V
t_{rr} [d]	Reverse Recovery Time	I_{DS}=-16A, dI_{SD}/dt=100A/μs	-	18	-	ns
Qrr [d]	Reverse Recovery Charge		-	9	-	nC
Dynamic Characteristics						
R_G	Gate Resistance	F=1MHz,V_{GS}=0V	-	4	-	Ω
C_{iss}	Input Capacitance	V_{GS}=0V, V_{DS} =-15V, Frequency=1.0MHz	-	1080	-	pF
C_{oss}	Output Capacitance		-	220	-	
C_{rss}	Reverse transfer capacitance		-	170	-	
$t_{d(ON)}$	Turn-on delay Time	VGS=-10V ,VDS=-15V RG=6Ω, ID=−1A,R_L=15Ω	-	11.2	-	nS
t_r	Turn-on rise Time		-	10.6	-	
$t_{d(OFF)}$	Turn-off delay Time		-	37	-	
t_f	Turn-off rise Time		-	50	-	
Gate Charge Characteristics						
Q_g	Total Gate Charge	V_{DS} =-15V, V_{GS}=-10V, I_{DS}=-16A	-	20	-	nC
Q_{gs}	Gate-Source Charge		-	1.1	-	
Q_{gd}	Gate-Drain Charge		-	7.7	-	

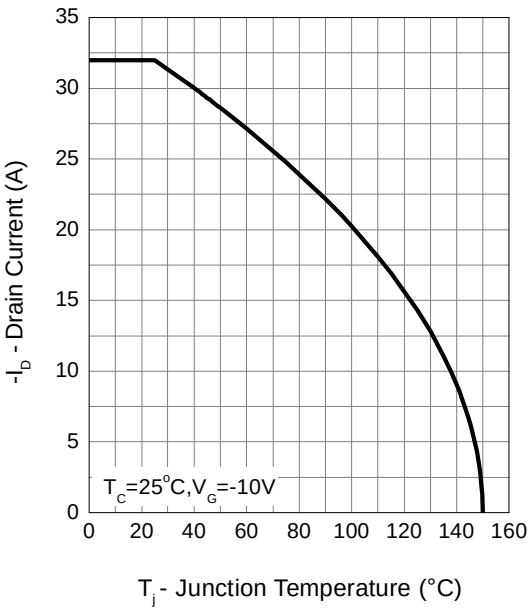
Note c：Pulse test ; pulse width≤300μs, duty cycle≤2%.
Note d：Guaranteed by design, not subject to production testing.

Typical Characteristics

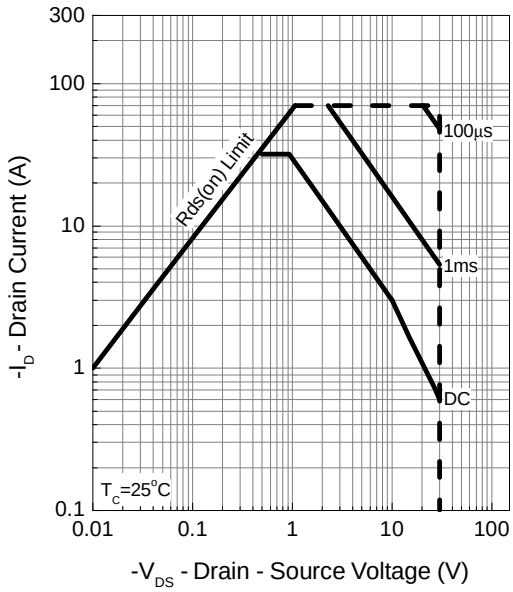
Power Dissipation



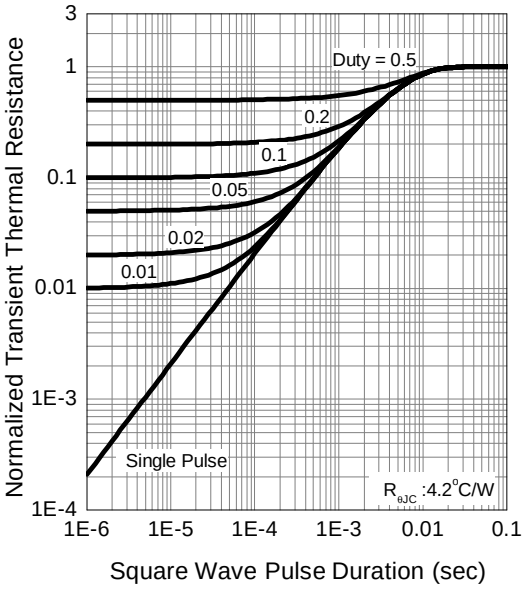
Drain Current



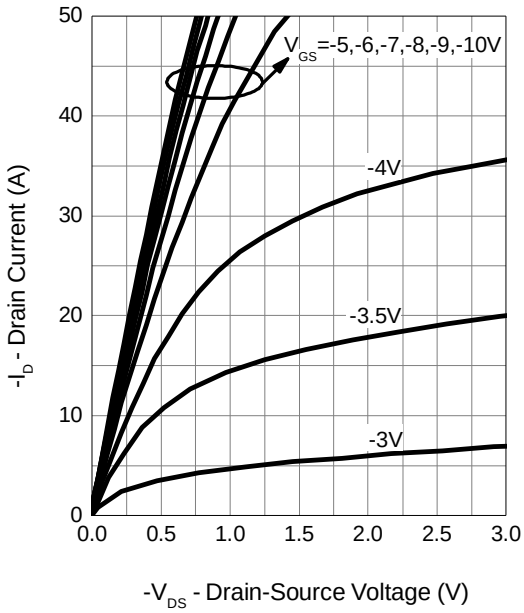
Safe Operation Area



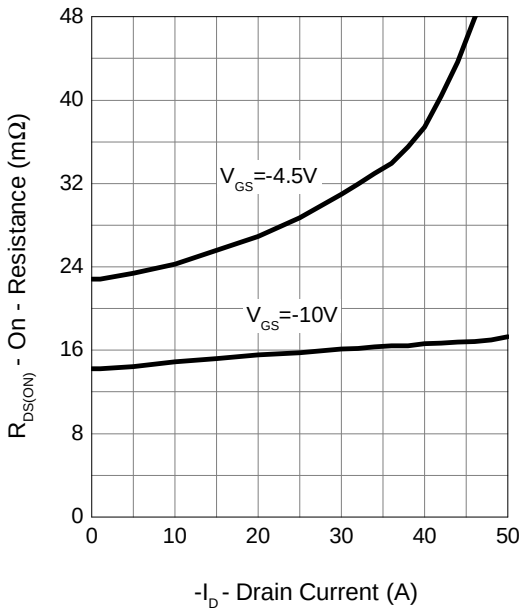
Thermal Transient Impedance



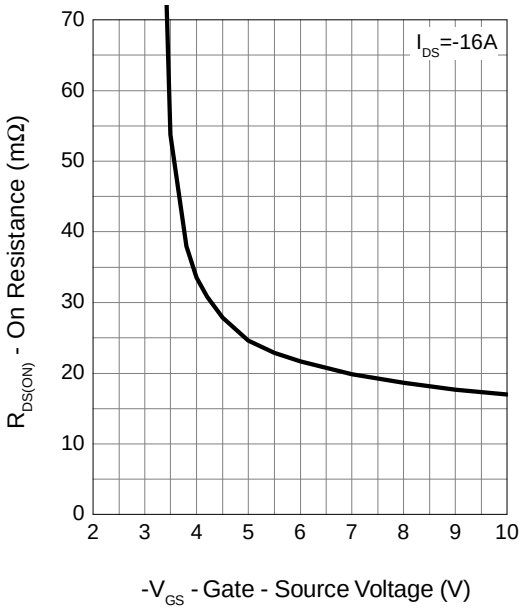
Output Characteristics



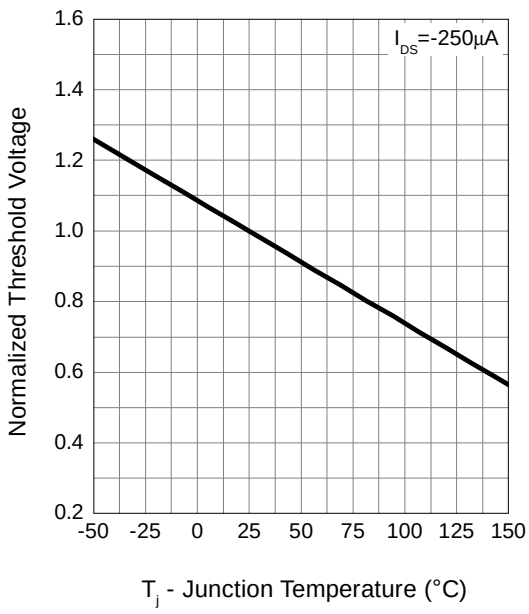
Drain-Source On Resistance



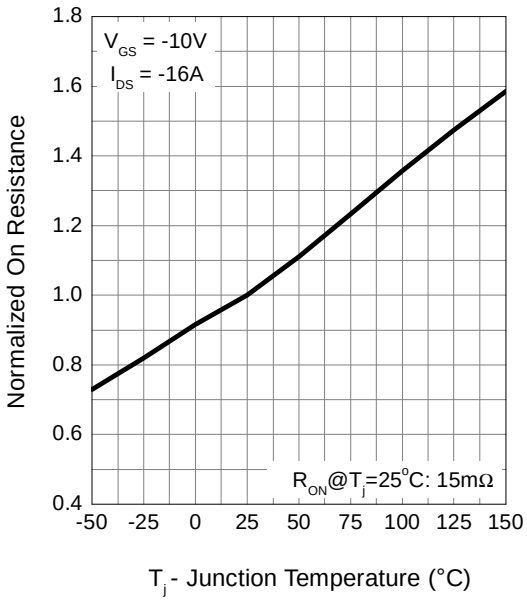
Gate-Source On Resistance



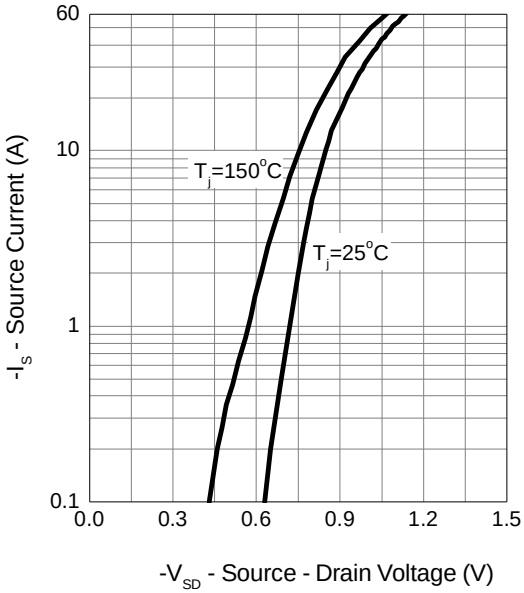
Gate Threshold Voltage



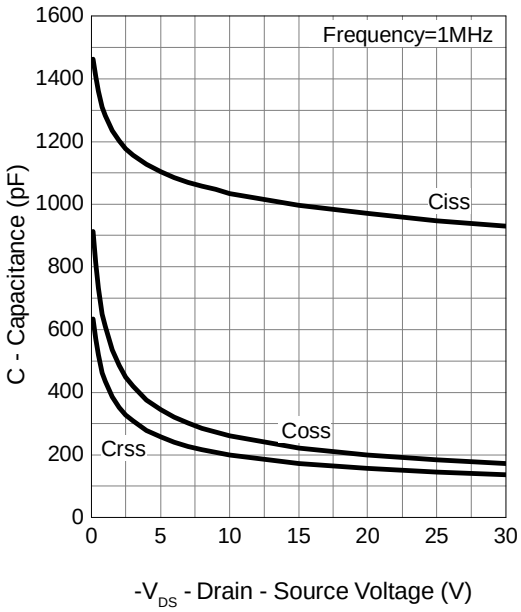
Drain-Source On Resistance



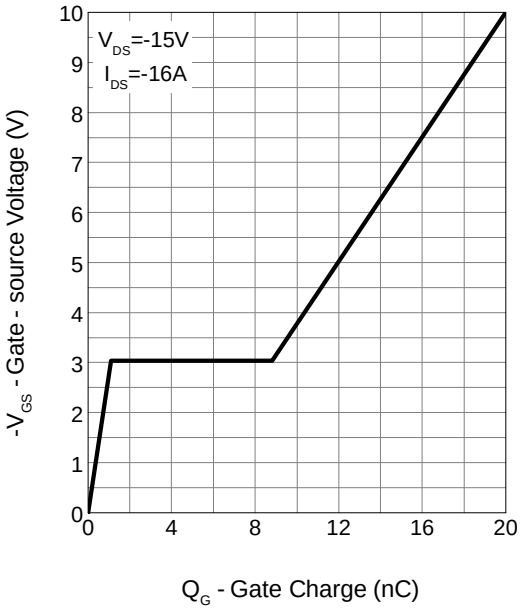
Source-Drain Diode Forward



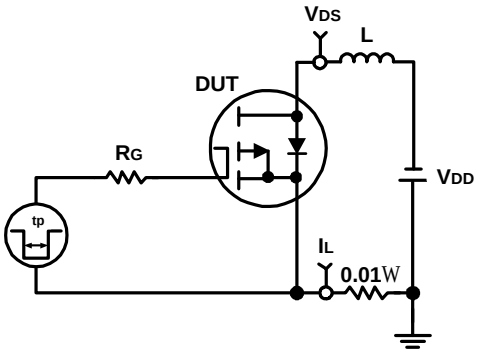
Capacitance

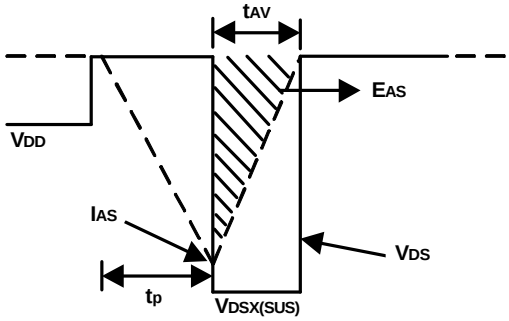


Gate Charge

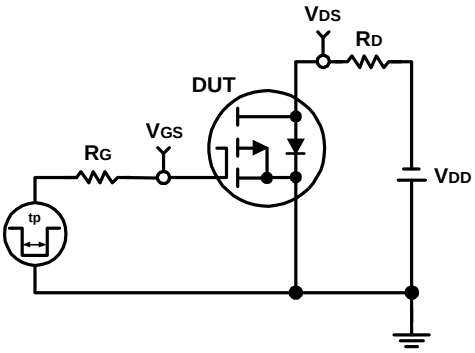


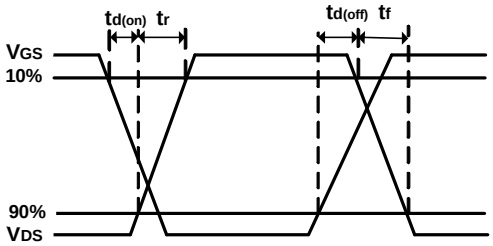
Avalanche Test Circuit and Waveforms



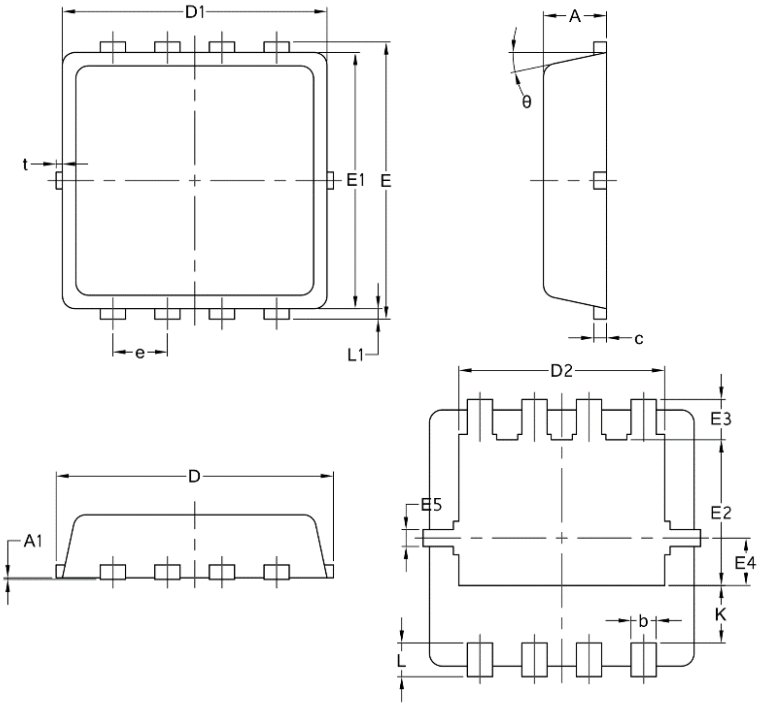


Switching Time Test Circuit and Waveforms





Package Mechanical Data:DFN3x3-8L



Symbol	Common		
	mm		
	Mim	Nom	Max
A	0.70	0.75	0.85
A1	/	/	0.05
b	0.20	0.30	0.40
c	0.10	0.152	0.25
D	3.15	3.30	3.45
D1	3.00	3.15	3.25
D2	2.29	2.45	2.65
E	3.15	3.30	3.45
E1	2.90	3.05	3.20
E2	1.54	1.74	1.94
E3	0.28	0.48	0.65
E4	0.37	0.57	0.77
E5	0.10	0.20	0.30
e	0.60	0.65	0.70
K	0.59	0.69	0.89
L	0.30	0.40	0.50
L1	0.06	0.125	0.20
t	0	0.075	0.13
Φ	10	12	14