



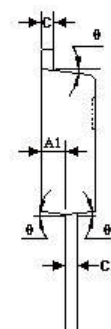
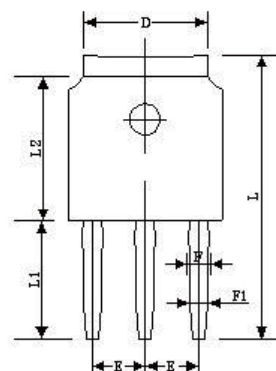
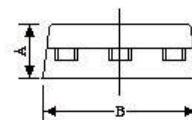
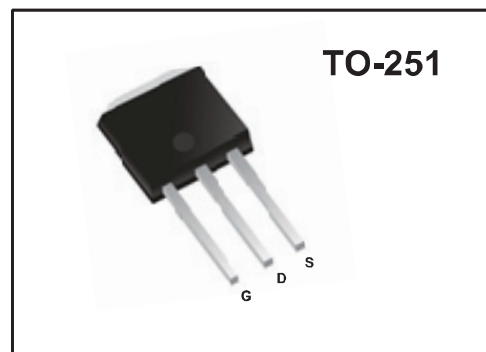
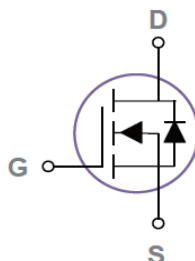
N-Channel Enhancement Mode MOSFET

Features

- ◆ $V_{DS} = 500V$
- ◆ $R_{DS(ON)}$ Typ. 0.7Ω @ $V_{GS} = 10V$
- ◆ Fully Avalanche Rated
- ◆ Pb Free & RoHS Compliant

Applications

- ◆ Backlighting
- ◆ Power Converters
- ◆ Synchronous Rectifiers



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

Parameter	Symbol	Ratings	Unit
Drain Source Voltage	V_{DS}	500	V
Gate Source Voltage	V_{GS}	± 30	V
Drain Current Continuous @ $T_c = 25^\circ C$ @ $T_c = 100^\circ C$	I_D	7 4.4	A
Drain Current Pulsed @ $T_c = 25^\circ C$	I_{DM}	28	A
Single Pulse Avalanche Energy	EAS	25	mJ
Single Pulse Avalanche Current	IAS	7	A
Maximum Power Dissipation	P_D	60	W
Storage Temperature Range	T_{STG}	-55 to +150	$^\circ C$
Operating Junction Temperature Range	T_J	-55 to +150	$^\circ C$
Thermal Resistance Junction to Case ^{Note3}	$R_{\theta Jc}$	2.1	$^\circ C/W$

Symbol	Dimensions In Millimeters		Dimensions In Inches	
	MAX	MIN	MAX	MIN
A	2.400	2.200	0.094	0.087
A1	1.110	0.910	0.044	0.036
B	6.700	6.500	0.264	0.256
C	0.580	0.460	0.023	0.018
C1	0.580	0.460	0.023	0.018
D	5.460	5.100	0.215	0.201
E	2.386	2.186	0.094	0.086
F	0.940	0.740	0.037	0.029
F1	0.860	0.660	0.034	0.026
L	12.300	11.700	0.484	0.461
L1	5.200	4.800	0.205	0.189
L2	6.200	6.000	0.244	0.236
θ	9°	3°	9°	3°



Electrical Characteristics @ T_J=25°C (unless otherwise specified)

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
OFF Characteristics						
Drain-Source Breakdown Voltage	BV _{DSS}	V _{GS} =0V , I _{DS} =250uA	500	-	-	V
Zero Gate Voltage Drain Current	I _{DSS}	V _{GS} =0V , V _{DS} =500V	-	-	1	uA
Gate-Body Leakage	I _{GSS}	V _{GS} =±30V , V _{DS} =0V	-	-	±100	nA
ON Characteristics						
Gate Threshold Voltage	V _{TH}	V _{DS} =V _{GS} , I _{DS} =250uA	3	4	5	V
Static Drain-Source On-Resistance	R _{DS(on)}	V _{GS} =10V , I _{DS} =4A	-	0.7	0.85	Ω
Dynamic Characteristics						
Input Capacitance	C _{iss}	V _{DS} =25V	-	1420	2060	pF
Output Capacitance	C _{oss}	V _{GS} =0V	-	95	140	
Reverse Transfer Capacitance	C _{rss}	Freq.=1MHz	-	7	15	
Switching Characteristics						
Turn-On Delay Time	T _{d(on)}	V _{DD} =300V V _{GS} =10V R _G =25Ω I _{DS} =1A	-	30	57	ns
Rise Time	T _r		-	18	34	
Turn-Off Delay Time	T _{d(off)}		-	38	72	
Fall Time	T _f		-	33	63	
Total Gate Charge	Q _g	V _{DS} =400V V _{GS} =10V I _{DS} =1A	-	27	41	nC
Gate to Source Charge	Q _{gs}		-	7.1	11	
Gate to Drain Charge	Q _{gd}		-	7.4	12	
Drain-Source Diode Characteristics						
Diode Forward Voltage	V _{SD}	V _{GS} =0V , I _S =1A	-	-	1	V

Notes:

1. Pulse Test: Pulse Width ≤ 300μs, Duty Cycle ≤ 2%.

2. V_{DD}=50V, V_{GS}=10V, L=1mH, I_{AS}=7A, R_G=25Ω, Starting T_J=25°C

3. R_{θJA} is the sum of the junction-to-case and case-to-ambient thermal resistance where the case thermal reference is defined as the solder mounting surface of the drain pins.

R_{θJC} is guaranteed by design while R_{θCA} is determined by the user's board design. R_{θJA} shown below for single device operation on FR-4 in still air.



Typical Characteristics

Fig.1 Continuous Drain Current vs. T_c

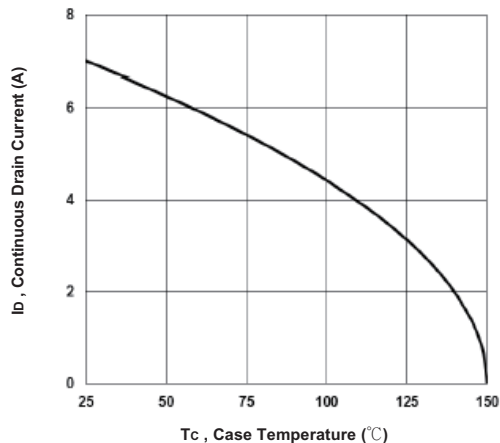


Fig.2 Normalized $R_{DS(on)}$ vs. T_J

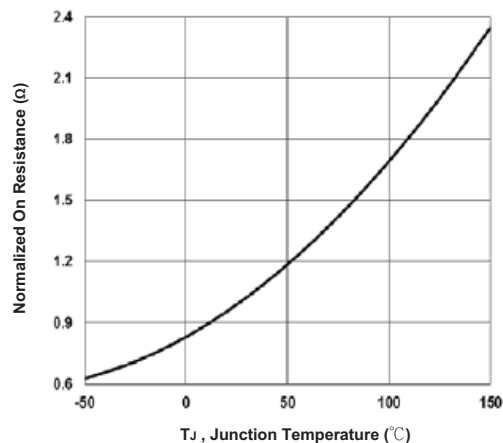


Fig.3 Normalized V_{th} vs. T_J

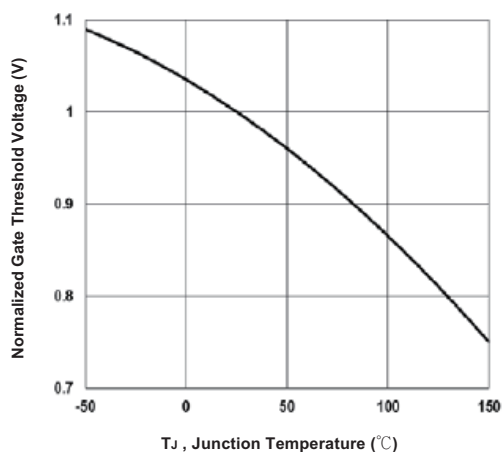


Fig.4 Gate Charge Waveform

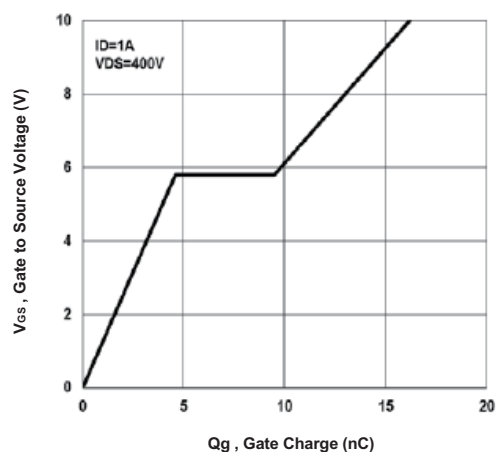


Fig.5 Normalized Transient Impedance

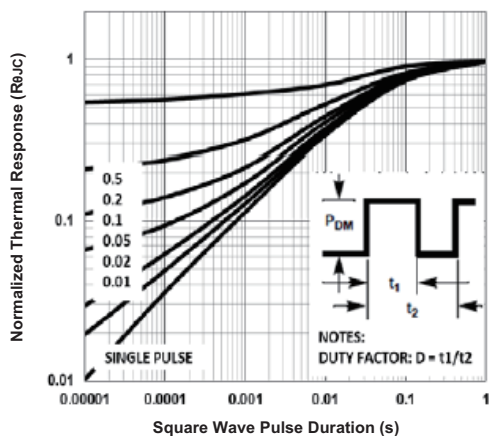
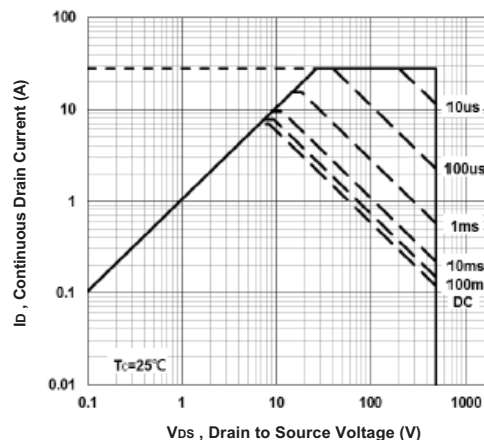


Fig.6 Maximum Safe Operation Area





Typical Characteristics

Fig.7 Switching Time Waveform

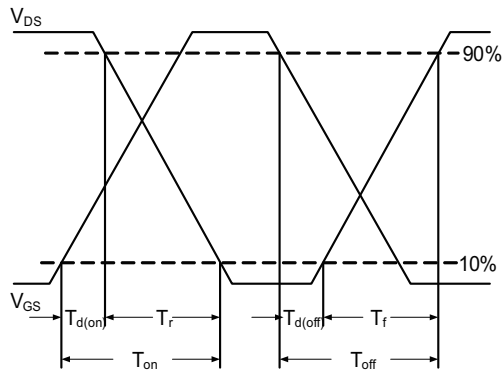


Fig.8 EAS Waveform

