

N-CHANNEL SILICON POWER MOS-FET

Features

- High speed switching
- Low on-resistance
- No secondary breakdown
- Low driving power
- Avalanche-proof

Applications

- Switching regulators
- UPS (Uninterruptible Power Supply)
- DC-DC converters

Maximum ratings and characteristic Absolute maximum ratings

(Tc=25°C unless otherwise specified)

Item	Symbol	Rating	Unit
Drain-source voltage	V _{DS}	1000	V
Continuous drain current	I _D	±7	A
Pulsed drain current	I _D (puls)	±28	A
Gate-source voltage	V _{GS}	±30	V
Repetitive or non-repetitive	IAR*2	7	A
Maximum Avalanche Energy	EAV*1	463	mJ
Max. power dissipation	P _D	255	W
Operating and storage temperature range	T _{ch} T _{stg}	+150 -55 to +150	°C

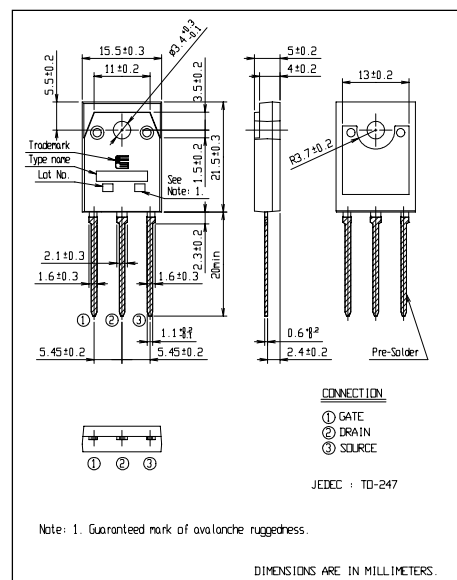
*1 L=17.3mH, V_{cc}=100V *2 T_{ch}≤150°C

Electrical characteristics (T_c =25°C unless otherwise specified)

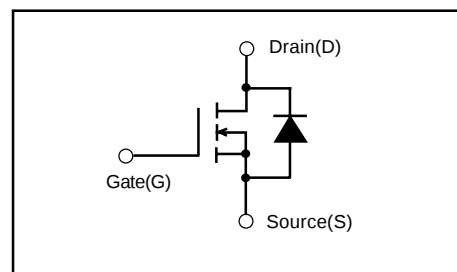
Item	Symbol	Test Conditions	Min.	Typ.	Max.	Units
Drain-source breakdown voltage	V _{(BR)DSS}	I _D =1mA V _{GS} =0V	100			V
Gate threshold voltage	V _{GS(th)}	I _D =1mA V _{DS} =V _{GS}	2.5	3.0	3.5	V
Zero gate voltage drain current	I _{DSS}	V _{DS} =1000V V _{GS} =0V		10	500	μA
		T _{ch} =25°C		0.2	1.0	mA
Gate-source leakage current	I _{GSS}	V _{GS} =±30V V _{DS} =0V		10	100	nA
Drain-source on-state resistance	R _{DS(on)}	I _D =3.5A V _{GS} =10V		1.54	2.0	Ω
Forward transconductance	g _{fs}	I _D =3.5A V _{DS} =25V	2.7	5.5		S
Input capacitance	C _{iss}	V _{DS} =25V		1480	2220	pF
Output capacitance	C _{oss}	V _{GS} =0V		170	255	
Reverse transfer capacitance	C _{rss}	f=1MHz		75	113	
Turn-on time t _{on}	td(on)	V _{CC} =600V I _D =7A		25	38	ns
	t _r	V _{GS} =10V		50	75	
Turn-off time t _{off}	td(off)	R _{GS} =10 Ω		160	240	
	t _r			70	105	
Total gate charge	Q _G	V _{CC} =500V		84	126	nC
Gate-Source charge	Q _{GS}	I _D =7A		23	35	
Gate-Drain charge	Q _{GD}	V _{GS} =10V		31	47	
Avalanche capability	I _{AV}	L=17.3 mH T _{ch} =25°C	7			A
Diode forward on-voltage	V _{SD}	I _F =2I _{DR} V _{GS} =0V T _{ch} =25°C		1.00	1.50	V
Reverse recovery time	t _{rr}	I _F =I _{DR} V _{GS} =0V		1.6		μs
Reverse recovery charge	Q _{rr}	-di/dt=100A/μs T _{ch} =25°C		15.0		μC

Thermal characteristics

Item	Symbol	Test Conditions	Min.	Typ.	Max.	Units
Thermal resistance	R _{th(ch-c)}	channel to case			0.490	°C/W
	R _{th(ch-a)}	channel to ambient			50.0	°C/W



Equivalent circuit schematic



Characteristics

