N-CHANNEL POWER MOSFET

Features

- LOW ON-RESISTANCE
- FAST SWITCHING
- HIGH INPUT RESISTANCE
- RoHS COMPLIANT

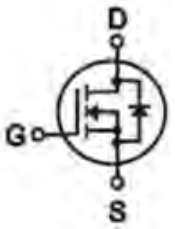
Applications

- LIGHTING
- UNINTERRUPTED POWER SUPPLY
- LED TV
- CONSUMER APPLIANCES

●Absolute Maximum Ratings（Tc=25°C）

TO-252

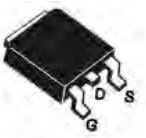
PARAMETER	SYMBOL	VALUE	UNIT
Drain-source Voltage	V_{DS}	200	V
gate-source Voltage	V_{GS}	± 30	V
Continuous Drain Current (TC=25℃)	I_D	18	A
Continuous Drain Current (TC=100℃)	I_D	9	A
Drain Current －Pulsed ①	I_{DM}	72	A
Power Dissipation	P_{tot}	50	W
Junction Temperature	Tj	150	℃
Storage Temperature	T_{STG}	-55-150	℃
Single Pulse Avalanche Energy ②	E_{AS}	320	mJ



V_{DS}=200V

$R_{DS(ON)}$=0.12Ω

I_D=18.0A



TO-252(DPAK)

●Electronic Characteristics (Tc=25°C)

PARAMETER	SYMBOL	TEST CONDITION	MIN	TYP	MAX	UNIT
Drain-source Breakdown Voltage	BV_{DSS}	V_{GS}=0V, I_D=250UA	200			V
Breakdown Voltage Temperature Coefficient	Δ BV_{DSS}/ Δ Tj	I_D=250uA, Referenced to 25℃		0.2		V/℃
Gate Threshold Voltage	$V_{GS(TH)}$	V_{GS}=V_{DS}, I_D=250UA	2.0		4.0	V
Drain-source Leakage Current	I_{DSS}	V_{DS} =200V, V_{GS} =0V, Tj=25℃			1	UA
		V_{DS} =200V, V_{GS} =0V, Tj=125℃			10	UA
Forward Transconductance	gfs	V_{DS} =10V, I_D=9A ③	6.5			S

● Electrical Characteristics

PARAMETER	SYMBOL	TEST CONDITION	MIN	TYP	MAX	UNIT
Gate-body Leakage Current (V_{DS} = 0)	I_{GSS}	V_{GS} =±30V			±100	nA
Static Drain-source On Resistance	$R_{DS(ON)}$	V_{GS} =10V, I_D=9A ③		0.12	0.15	Ω
Input Capacitance	Ciss	VGS = 0V, VDS = 25V F = 1.0MHZ		1150		pF
Output Capacitance	Coss			185		pF
Miller Capacitance	Crss			30		pF
Turn-On Delay Time	$t_{DLY(ON)}$	VDD=100V,ID =11A RG= 3.5Ω, RD=25Ω ③		18		ns
Rise Time	t_R			22		ns
Turn-Off Delay Time	$t_{DLY(OFF)}$			25		ns
Fall Time	t_F			50		ns
Total Gate Charge	Qg	I_D =11A, V_{DS} = 160V V_{GS} = 10V ③		22.5		nC
Gate-to-Source Charge	Qgs			4.7		
Gate-to-Drain Charge	Qgd			6.9		nC
Continuous Diode Forward Current	I_S				18.0	A
Diode Forward Voltage	V_{SD}	Tj=25°C, Is=18A V_{GS} =0V ③			1.45	V
Reverse Recovery Time	trr	Tj=25°C, If=11A di/dt=100A/μs ③			235	ns
Reverse Recovery Charge	Qrr			926		uC

●Thermal Characteristics

PARAMETER	SYMBOL	MAX	UNIT
		TO-252	
Thermal Resistance Junction-case	Rth_{JC}	2.5	℃/W
Thermal Resistance Junction-ambient	Rth_{JA}	62.5	℃/W

(Notes):

① Repetitive rating: Pulse width limited by maximum junction temperature

② Starting Tj=25ºC, V_{DD} =50V, L=2.0 mH, R_G =25Ω, I_{AS}=18.0A

③ Pulse Test : Pulse width ≤ 300μs, Duty cycle ≤ 2%

Typical Performance Characteristics

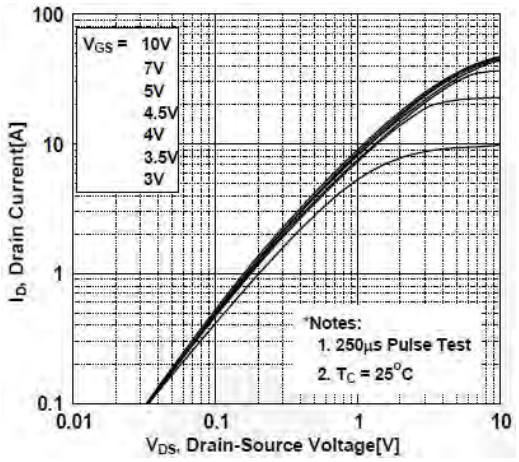


Fig1 Typical Output Characteristics, Tc=25℃

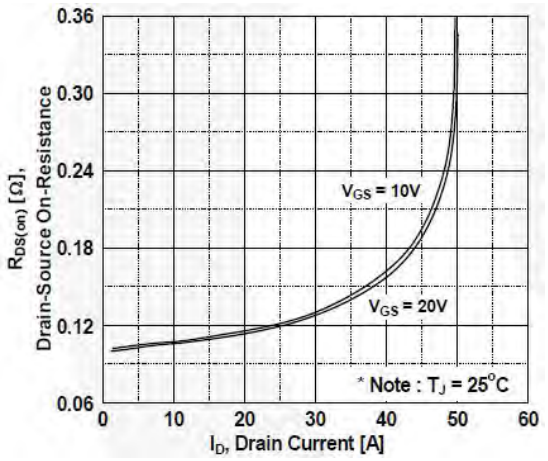


Fig2 On-Resistance Vs.Drain Current and Gate Voltage

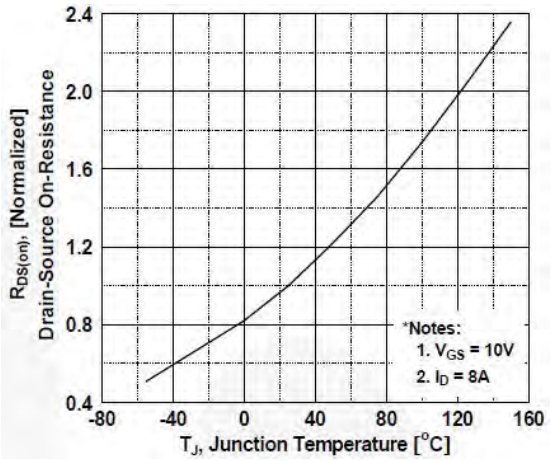


Fig3 Normalized On-Resistance Vs.Temperature

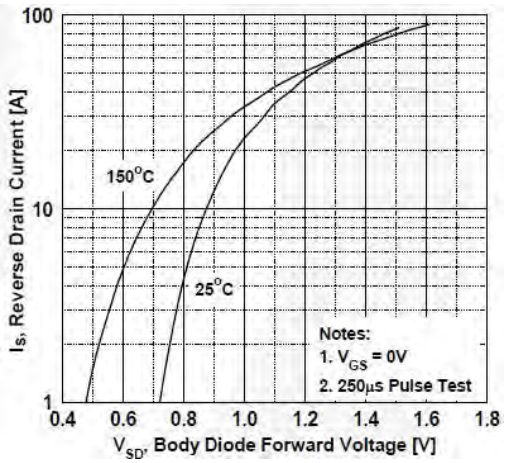


Fig4 Typical Source-Drain Diode Forward Voltage

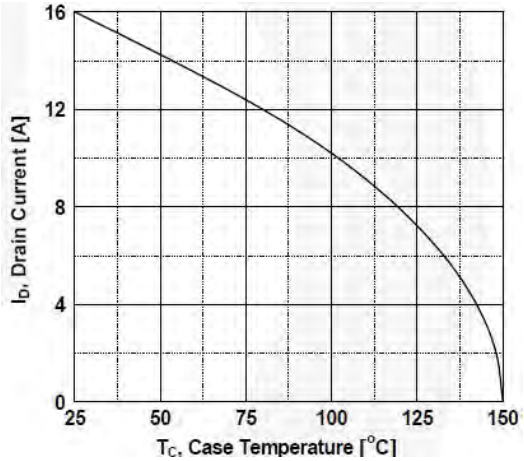


Fig5 Maximum Drain Current Vs.Case Temperature

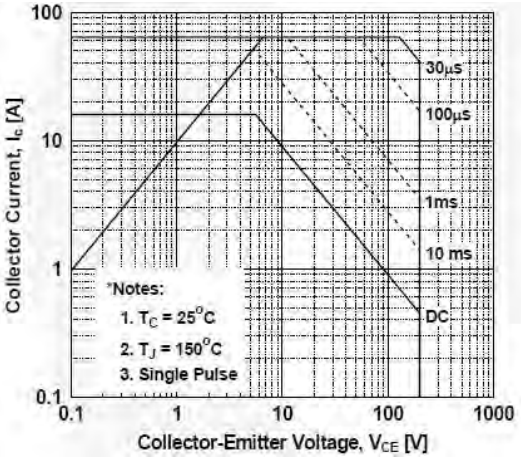
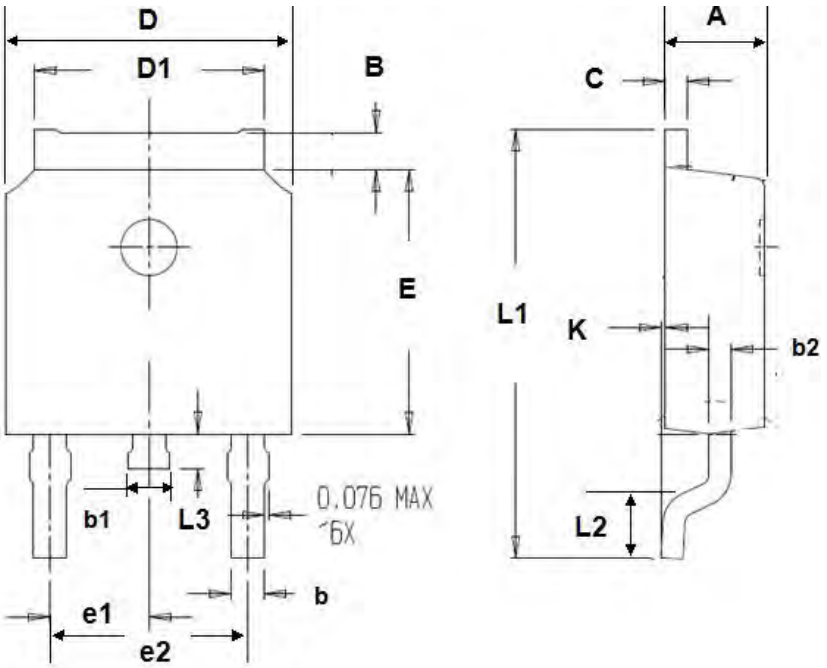


Fig6 Maximum Safe Operating Area

TO-252 MECHANICAL DATA

UNIT： mm

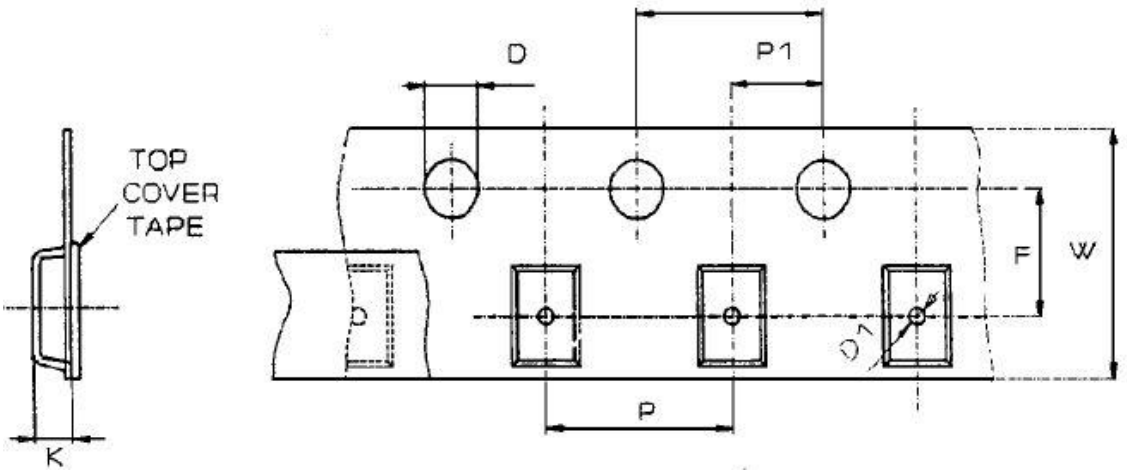
SYMBOL	min	max	SYMBOL	min	max
A	2.10	2.50	B	0.85	1.25
b	0.50	0.80	b1	0.70	1.20
b2	0.45	0.70	C	0.45	0.70
D	6.30	6.75	D1	5.10	5.50
E	5.30	6.30	e1	2.25	2.35
L1	9.20	10.60	e2	4.45	4.75
L2	0.90	1.75	L3	0.60	1.10
K	0.00	0.23			



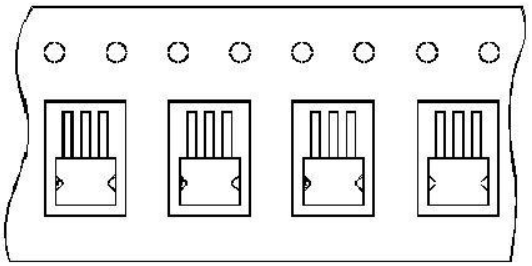
TO-252 TAPE AND REEL DATA

UNIT： mm

SYMBOL	min	max	SYMBOL	min	max
W	16.0-0.3	16.0+0.3	F	7.5-0.1	7.5+0.1
P0	4.0-0.1	4.0+0.1	D	1.5-0.0	1.5+0.1
P	8.0-0.1	8.0+0.1	P1	2.0-0.1	2.0+0.1
K	2.65	2.80	D1	1.5-0.0	1.5+0.1



USER DIRECTION OF FEED



UNIT ORIENTATION