

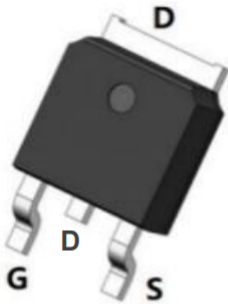
Product Summary

- V_{DS} 30 V
- I_{DS} 80A
- $R_{DS(ON)}$ (at $V_{GS}=10$) $\leq 6m\Omega$
- Low Gate Charge Minimize Switching Loss

Application

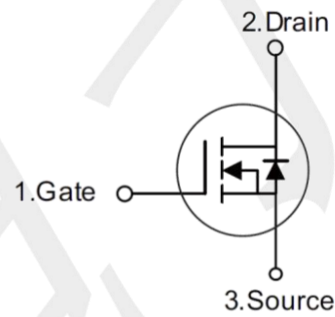
- Adaptor
- Charger
- Power management
- SMPS Standby Power

Package and Pin Configuration



T0-252

Circuit diagram



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

PARAMETER	SYMBOL	Value	UNIT
Drain-Source Voltage	V_{DS}	30	V
Gate-Source Voltage	V_{GS}	± 20	V
Continuous Drain Current	I_D	80	A
Continuous Drain Current ($T_C=100^\circ\text{C}$)	I_D	56	A
Pulsed Drain Current (Note 1)	I_{DM}	320	A
Maximum Power Dissipation @ $T_A=25^\circ\text{C}$	P_D	39	W
Single Pulsed Avalanche Energy ⁽²⁾	E_{AS}	127	mJ
Operating Junction Temperature Range	T_J	+150	$^\circ\text{C}$
Storage Temperature Range	T_{stg}	-55 to +150	$^\circ\text{C}$
Thermal Resistance, Junction-to-Case	R_{thJC}	1.8	$^\circ\text{C/W}$
Thermal Resistance, Junction-to-Ambient	R_{thJA}	65	$^\circ\text{C/W}$

Note : 1. When mounted on 1" square PCB (FR4 material).

2. EAS condition: $T_J=25^\circ\text{C}$, $V_{DD}=30\text{V}$, $V_G=10\text{V}$, $L=0.5\text{mH}$, $R_g=25\Omega$

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

PARAMETER	CONDITIONS	SYMBOL	MIN	TYP	MAX	UNIT
Static						
Drain-Source Breakdown Voltage	$V_{GS}=0V, I_D=250\mu A$	BV_{DSS}	30	--	--	V
Gate-Source Threshold Voltage	$V_{DS}=V_{GS}, I_D=250\mu A$	$V_{GS(th)}$	1.0	1.8	2.5	V
Gate-Source Leakage	$V_{DS}=0V, V_{GS}= \pm 20V$	I_{GSS}	--	--	± 100	nA
Zero Gate Voltage Drain Current	$V_{DS}= 60V, V_{GS}=0V$	I_{DSS}	--	--	1	μA
Drain-Source On-State Resistance	$V_{GS}= 10V, I_D= 40A$	$R_{DS(on)}$	--	4.0	6.0	m Ω
	$V_{GS}= 4.5V, I_D= 40A$		--	6.8	10	
Forward Trans conductance	$V_{DS}=5V, I_D=30A$	g_{FS}	--	30	--	S
Dynamic (Note 2)						
Total Gate Charge (Note 3)	$V_{DS}= 15V,$ $I_D=40A,$ $V_{GS}= 10V$	Q_g	--	42	--	nC
Gate-Source Charge (Note 3)		Q_{gs}	--	6.8	--	
Gate-Drain Charge (Note 3)		Q_{gd}	--	9.2	--	
Input Capacitance	$V_{DS}= 15V, V_{GS}= 0V,$ $F= 1.0MHz$	C_{iss}	--	1280	--	pF
Output Capacitance		C_{oss}	--	268	--	
Reverse Transfer Capacitance		C_{rss}	--	182	--	
Switching						
Turn-On Delay Time (Note 3)	$V_{DD}= 15V,$ $I_D= 40A,$ $V_{GS}= 10V,$ $R_G= 3.3\Omega$	$t_{d(on)}$	--	10	--	nS
Rise Time (Note 3)		t_r	--	76	--	
Turn-Off Delay Time (Note 3)		$t_{d(off)}$	--	35	--	
Fall Time (Note 3)		t_f	--	10	--	
Source-Drain Diode Ratings and Characteristics (Note 2)						
Forward Voltage	$V_{GS}= 0V, I_S= 10A$	V_{SD}	--	0.8	1.2	V
Continuous Source Current	Integral reverse diode in the MOSFET	I_S	--	--	80	A
Pulsed Current (Note 1)		I_{SM}	--	--	320	A

Notes:

1. Pulse test; pulse width ≤ 300 μS, duty cycle ≤ 1%.
2. Guaranteed by design, not subject to production testing.
3. Independent of operating temperature

TYPICAL CHARACTERISTICS ($T_A=25^\circ\text{C}$ unless otherwise noted)

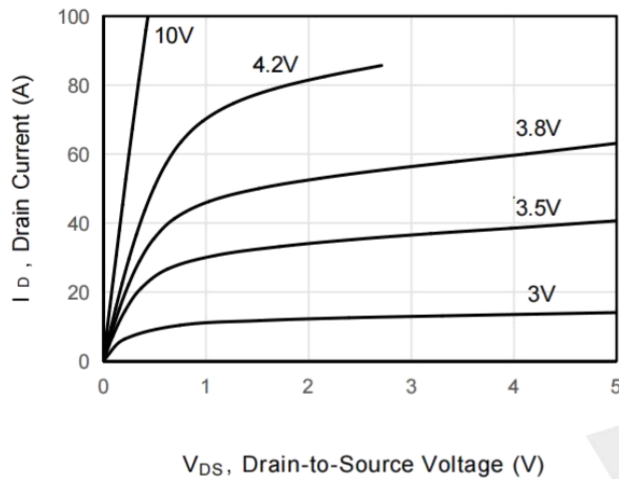


Figure 1 . Output Characteristics

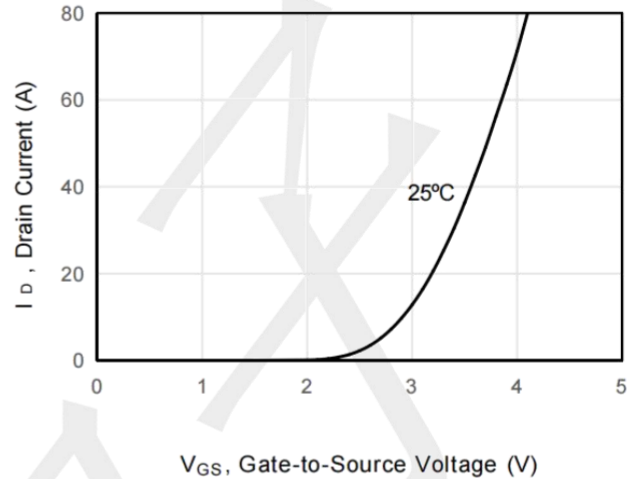


Figure 2 . Transfer Characteristics

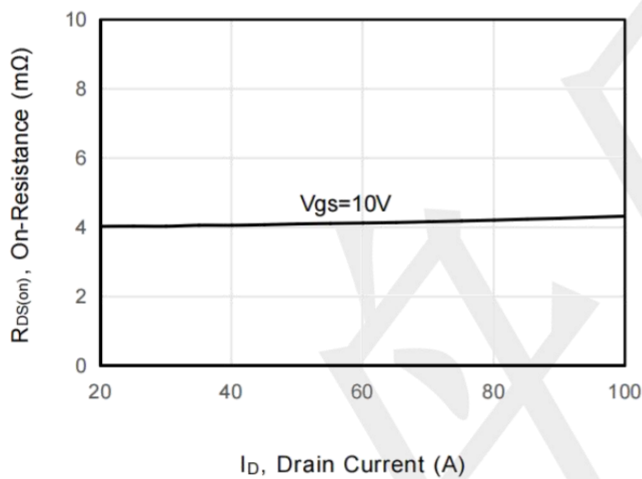


Figure 3 . On-Resistance vs Drain Current

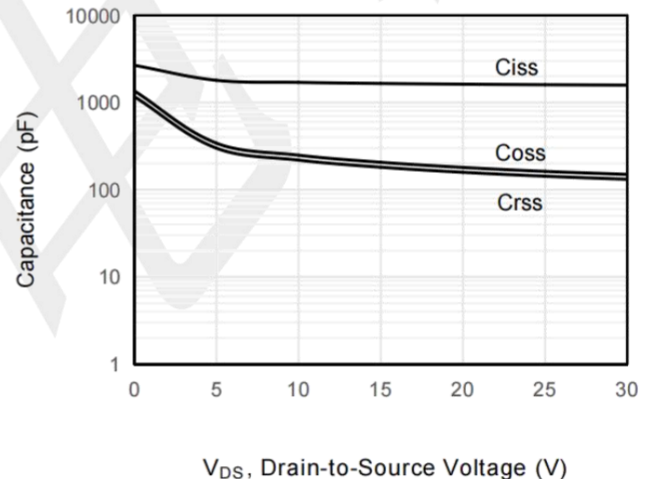


Figure 4 . Capacitance

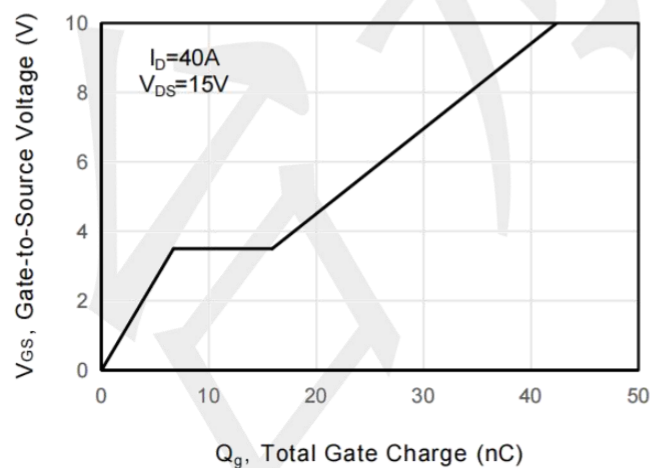


Figure 5 . Gate Charge

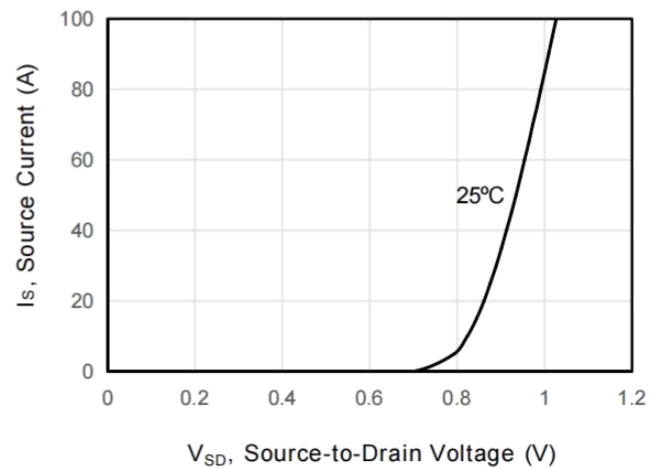
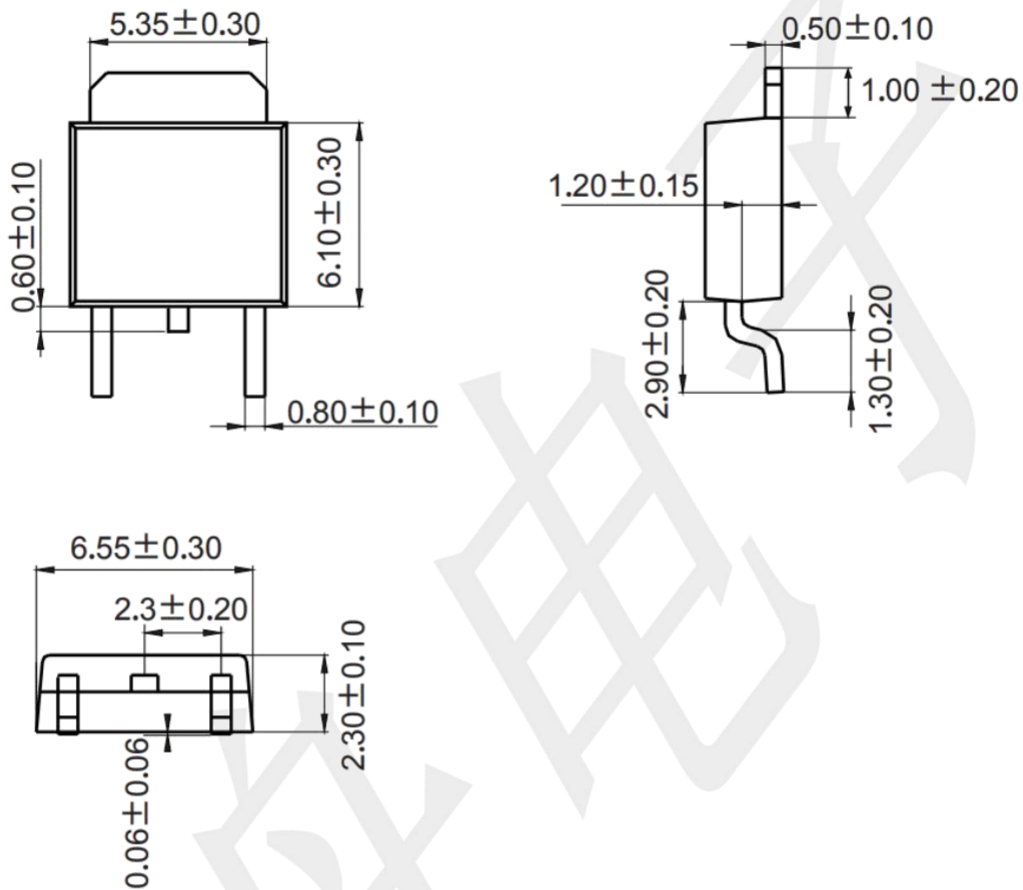


Figure 6 . Body Diode Forward Voltage

Package Outline Dimensions (unit: mm)

TO-252



Mounting Pad Layout (unit: mm)

