

Product Summary

- V_{DS} 60 V
- I_{DS} 80A
- $R_{DS(ON)}$ (at $V_{GS}=10$) $\leq 5.8m\Omega$ (Typ)
- Low Gate Charge Minimize Switching Loss

Application

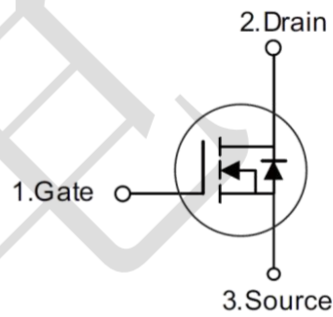
- Adaptor
- Charger
- Power management
- SMPS Standby Power

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}	60	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	42	A
Pulsed Drain Current (Note 1)	I_{DM}	270	A
Maximum Power Dissipation @ $T_A=25^\circ\text{C}$	P_D	100	W
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	$R_{\theta JC}$	2.1	$^\circ\text{C/W}$

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

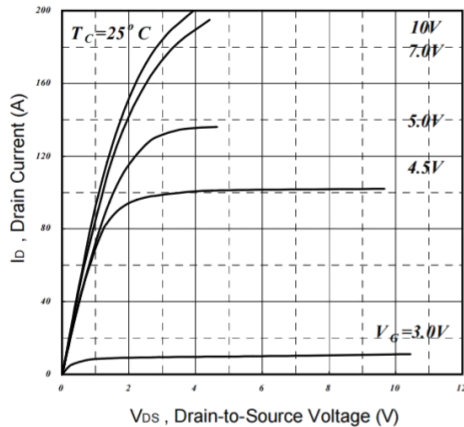
Electrical Characteristics (T_A=25°C unless otherwise noted)

PARAMETER	CONDITIONS	SYMBOL	MIN	TYP	MAX	UNIT
Static						
Drain-Source Breakdown Voltage	$V_{GS}=0V, I_D=250\mu A$	BV_{DSS}	60	--	--	V
Gate-Source Threshold Voltage	$V_{DS}=V_{GS}, I_D=250\mu A$	$V_{GS(th)}$	1.5	3.0	4.5	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}	--	--	10	μA
Drain-Source On-State Resistance	$V_{GS}= 10V, I_D= 40A$	$R_{DS(on)}$	--	5.8	6.8	m Ω
	$V_{GS}= 4.5V, I_D= 20A$		--	7.5	9.6	m Ω
Forward Trans conductance	$V_{DS}=10V, I_D=30A$	g_{FS}	--	70	--	S
Dynamic (Note 2)						
Total Gate Charge (Note 3)	$V_{DS}= 48V, I_D= 30A,$ $V_{GS}= 4.5V$	Q_g	--	33	--	nC
Gate-Source Charge (Note 3)		Q_{gs}	--	5.0	--	
Gate-Drain Charge (Note 3)		Q_{gd}	--	21	--	
Input Capacitance	$V_{DS}= 25V, V_{GS}= 0V,$ $F= 1.0MHz$	C_{iss}	--	2660	--	pF
Output Capacitance		C_{oss}	--	280	--	
Reverse Transfer Capacitance		C_{rss}	--	200	--	
Switching						
Turn-On Delay Time (Note 3)	$V_{DD}= 30V, I_D= 30A,$ $V_{GS}= 10V,$ $R_G= 3.3\Omega$	$t_{d(on)}$	--	10	--	nS
Rise Time (Note 3)		t_r	--	42	--	
Turn-Off Delay Time (Note 3)		$t_{d(off)}$	--	46	--	
Fall Time (Note 3)		t_f	--	80	--	
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}	--	--	270	A
Reverse recovery time	$V_{GS}=0V, I_F=20A,$	t_{rr}	--	25	--	nS
Reverse recovery charge	$diF/dt=-100A/\mu s$	Q_{rr}	--	24	--	nC

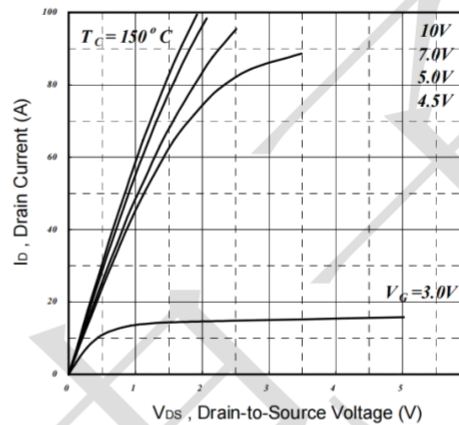
Notes:

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

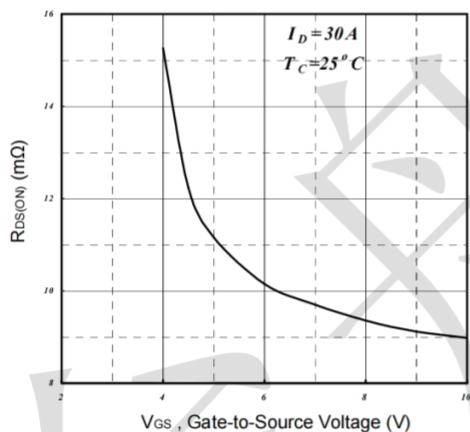
TYPICAL CHARACTERISTICS ($T_A=25^\circ\text{C}$ unless otherwise noted)



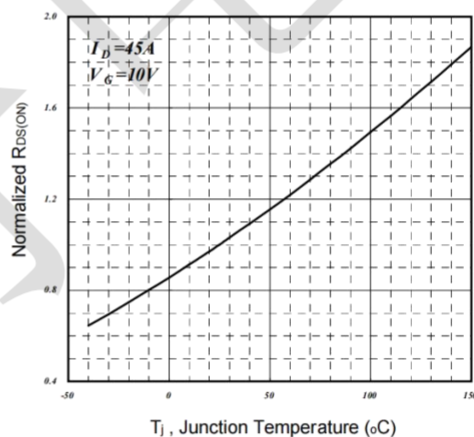
Typical Output Characteristics



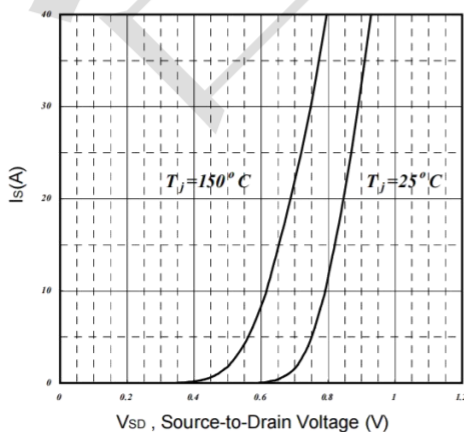
Typical Output Characteristics



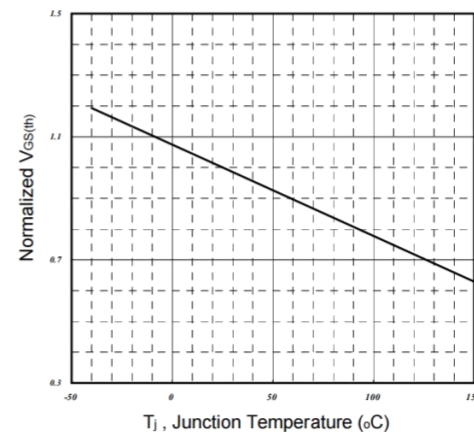
On-Resistance v.s. Gate Voltage



Normalized On-Resistance v.s. Junction Temperature



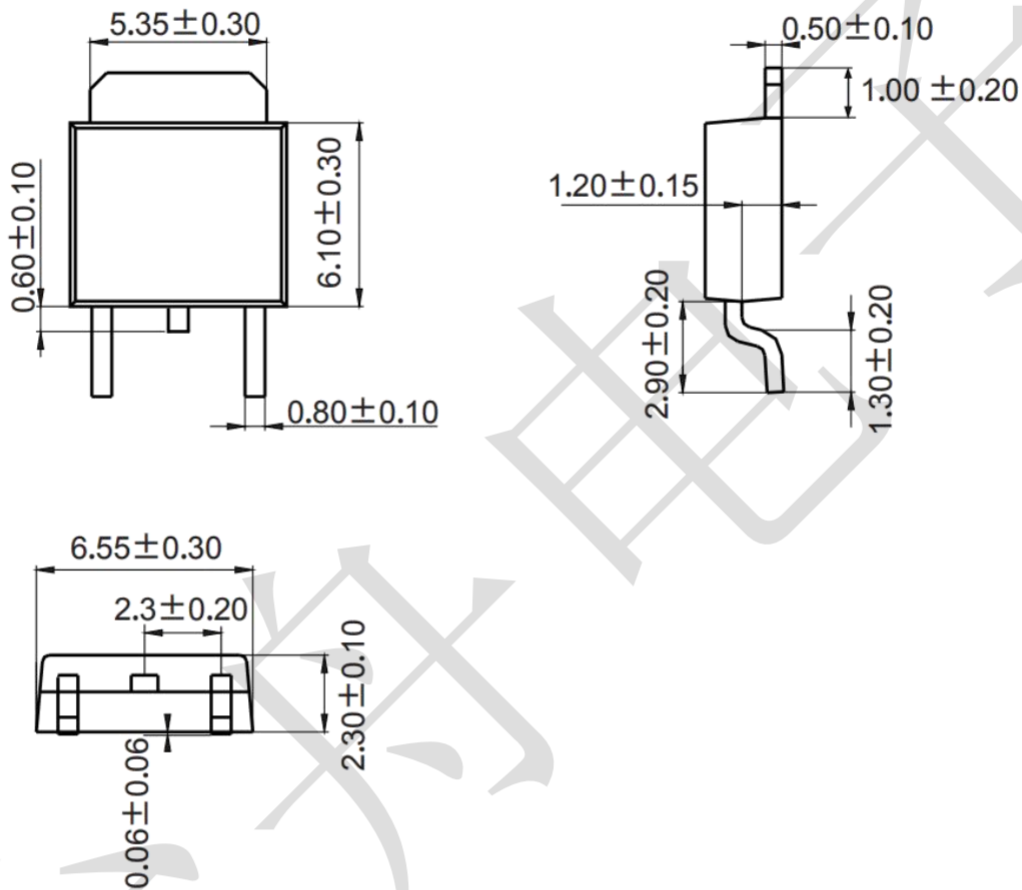
Forward Characteristic of Reverse Diode



Gate Threshold Voltage v.s. Junction Temperature

Package Outline Dimensions (unit: mm)

TO-252



Mounting Pad Layout (unit: mm)

