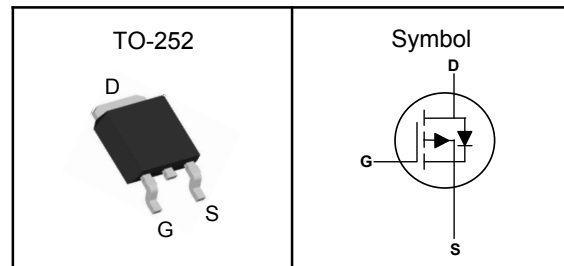


P-Channel Enhancement Mode MOSFET
Features

- Low $R_{ds(on)}$ for low conduction loss
- Reliable and Rugged
- ROHS Compliant & Halogen-Free

Applications

- Power Management in Desktop Computer
- DC/DC Converters

Pin Description


V_{DSS}	-100	V
$R_{DS(ON)-Typ}$	40	m Ω
I_D	-32	A

Absolute Maximum Ratings ($T_C=25^\circ\text{C}$, Unless Otherwise Noted)

Symbol	Parameter	Rating	Unit
V_{DSS}	Drain-Source Voltage	-100	V
V_{GSS}	Gate-Source Voltage	± 20	V
T_J	Maximum Junction Temperature	-55 to 150	$^\circ\text{C}$
T_{STG}	Storage Temperature Range	-55 to 150	$^\circ\text{C}$
$I_{DM}^{①}$	Pulse Drain Current Tested	-128	A
I_D	Continuous Drain Current	-32	A
P_D	Maximum Power Dissipation	107	W
E_{AS}	Single Pulse Avalanche Energy	361	mJ

Thermal Characteristics

Symbol	Parameter	Rating	Unit
$R_{\theta JC}$	Thermal Resistance-Junction to Case	1.16	$^\circ\text{C/W}$

Note ① : Max. current is limited by bonding wire.

Note ② : UIS tested and pulse width are limited by maximum junction temperature 150°C .

Note ③ : Surface Mounted on 1in^2 FR-4 board with 1oz.



P-Channel Enhancement Mode MOSFET

Electrical Characteristics ($T_J=25^{\circ}\text{C}$, Unless Otherwise Noted)

Symbol	Parameter	Test Conditions	Min	Typ	Max	Unit
Static Electrical Characteristics						
BV_{DSS}	Drain-Source Breakdown Voltage	$V_{GS}=0V, I_D=-250\mu A$	-100	---	---	V
I_{DSS}	Zero Gate Voltage Drain Current	$V_{DS}=-10V, V_{GS}=0V$	---	---	-1	μA
$V_{GS(th)}$	Gate Threshold Voltage	$V_{DS}=V_{GS}, I_D=-250\mu A$	-1.0	---	-2.5	V
I_{GSS}	Gate Leakage Current	$V_{GS}=\pm 20V, V_{DS}=0V$	---	---	± 100	nA
$R_{DS(on)}$	Drain-Source On-state Resistance	$V_{GS}=-10V, I_D=-20A$	---	40	52	m Ω
		$V_{GS}=-4.5V, I_D=-10A$	---	41	53	m Ω
Dynamic Characteristics ^⑤						
C_{iss}	Input Capacitance	$V_{GS}=0V, V_{DS}=-50V, \text{Freq.}=1\text{MHz}$	---	7810	---	pF
C_{oss}	Output Capacitance		---	188	---	
C_{rss}	Reverse Transfer Capacitance		---	67	---	
$T_{d(on)}$	Turn-on Delay Time	$V_{GS}=-10V, V_{DS}=-50V, I_D=-5A, R_G=6\Omega$	---	13	---	nS
T_r	Turn-on Rise Time		---	39	---	
$T_{d(off)}$	Turn-off Delay Time		---	100	---	
T_f	Turn-off Fall Time		---	105	---	
Q_g	Total Gate Charge	$V_{GS}=-10V, V_{DS}=-50V, I_D=-5A$	---	148	---	nC
Q_{gs}	Gate-Source Charge		---	7.8	---	
Q_{gd}	Gate-Drain Charge		---	8.6	---	
Source-Drain Characteristics						
V_{SD} ^④	Diode Forward Voltage	$I_S=-30A, V_{GS}=0V$	---	---	-1.2	V
t_{rr}	Reverse Recovery Time	$I_F=-5A, dI_F/dt=100A/\mu s$	---	104	---	nS
Q_{rr}	Reverse Recovery Charge		---	280	---	nC

Note ④: Pulse test (pulse width 300 μs , duty cycle 2%).

Note ⑤: Guaranteed by design, not subject to production testing.

P-Channel Enhancement Mode MOSFET

Typical Characteristics

Figure 1. Output Characteristics

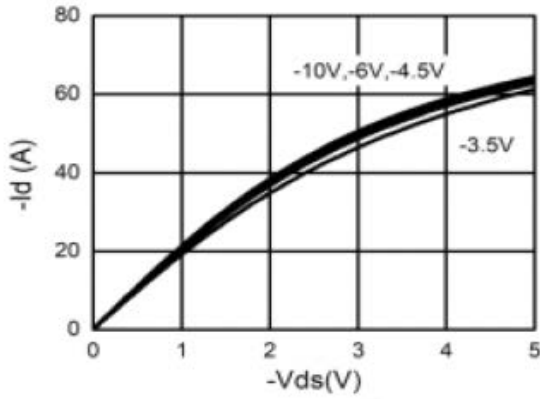


Figure 2. Transfer Characteristics

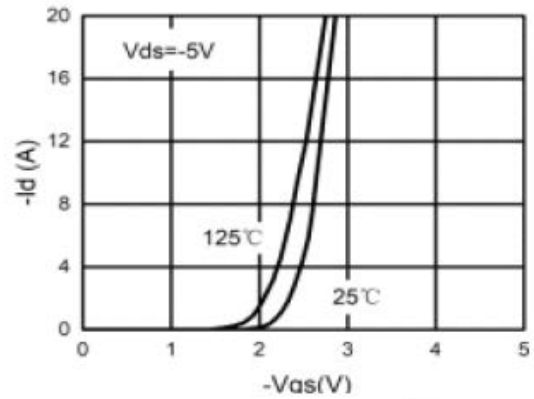


Figure 3. Power Dissipation

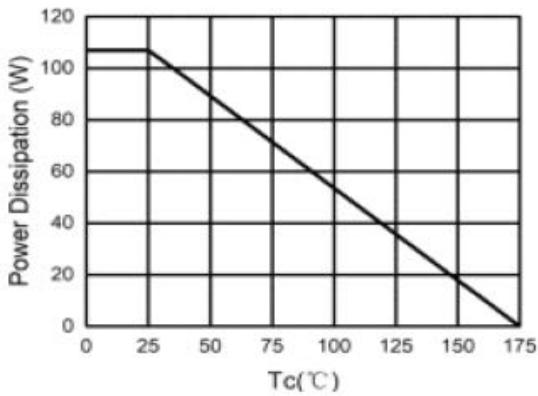


Figure 4. Drain Current

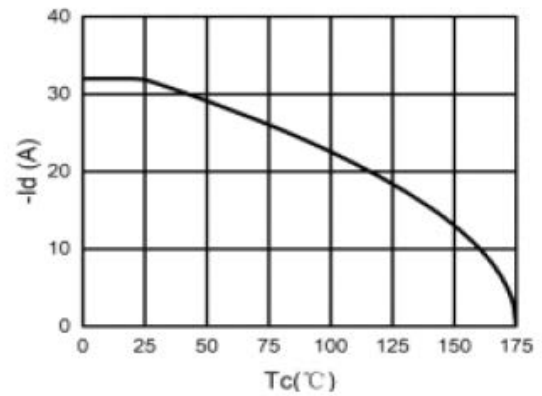


Figure 5. BV_{DSS} vs Junction Temperature

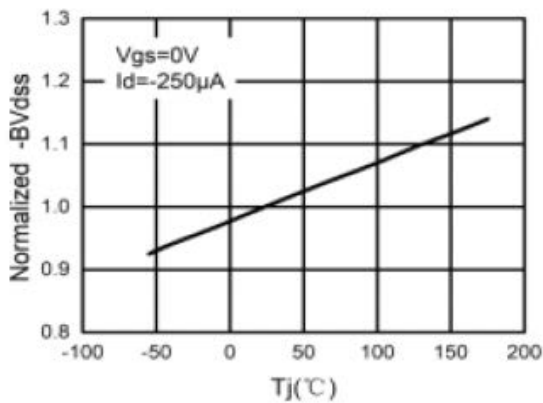
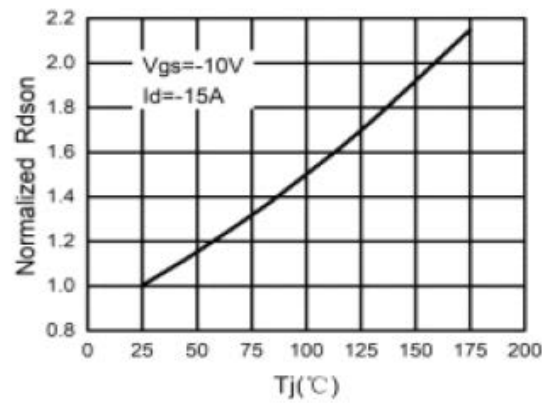


Figure 6. $R_{DS(ON)}$ vs Junction Temperature



P-Channel Enhancement Mode MOSFET

Figure 7. Gate Charge Waveforms

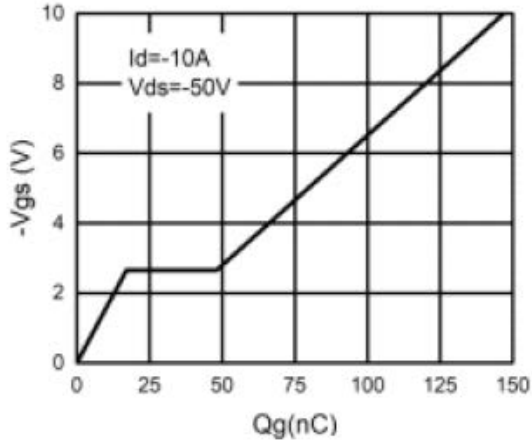


Figure 8. Capacitance

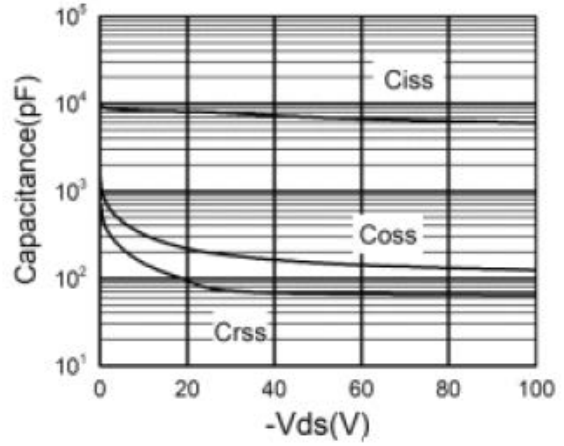


Figure 9. Body-Diode Characteristics

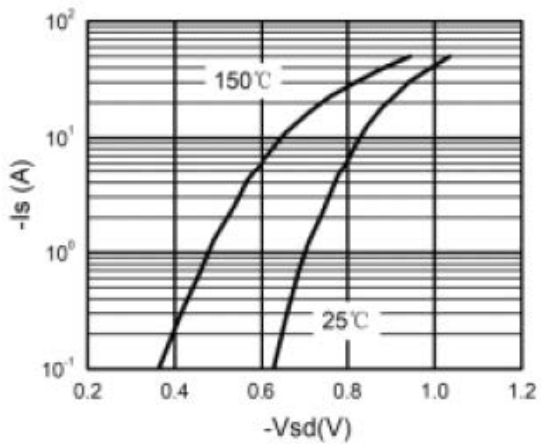
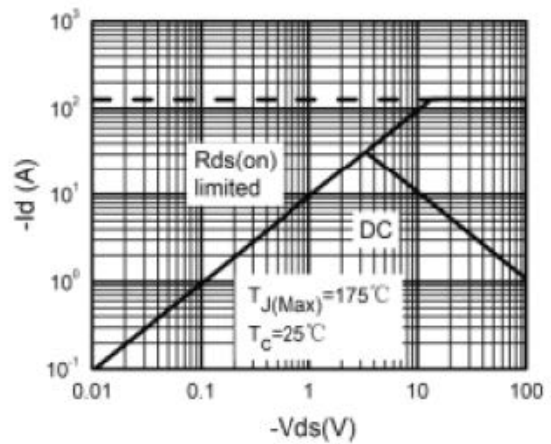
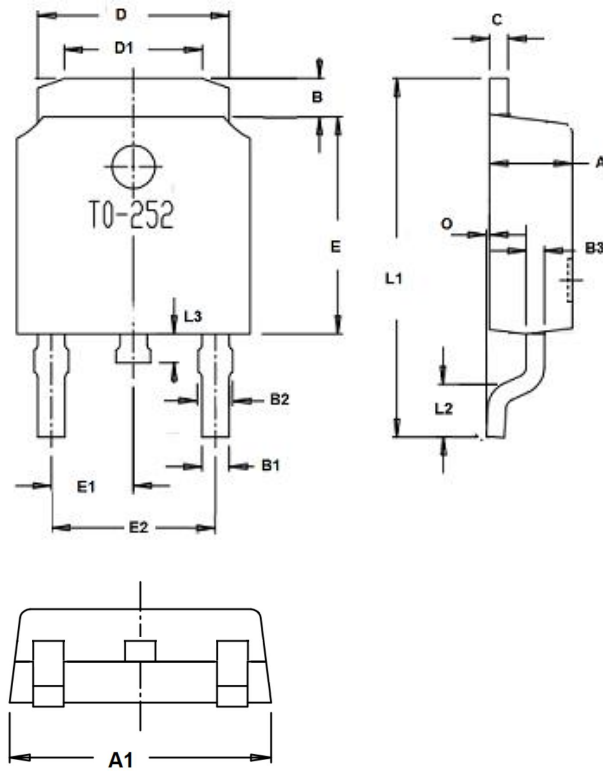


Figure 10. Maximum Safe Operating Area



P-Channel Enhancement Mode MOSFET
TO-252 Package Outline Dimensions


Dim.	Min.	Max.
A	2.1	2.5
A1	6.3	6.9
B	0.96	1.42
B1	0.74	0.86
B2	0.74	0.94
C	Typ0.5	
D	5.33	5.53
D1	3.65	4.05
E	6.0	6.2
E1	Typ2.29	
E2	Typ4.58	
O	0	0.15
L1	9.9	10.5
L2	Typ1.65	
L3	0.6	1.0
All Dimensions in millimeter		