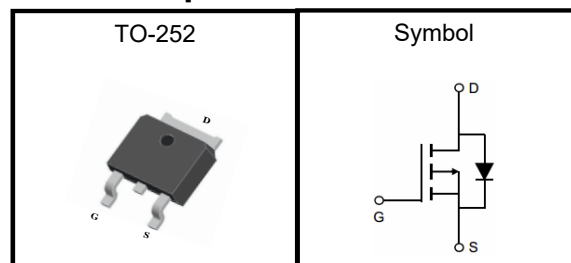


P-Channel Enhancement Mode MOSFET
Feature

- High density cell design for ultra low R_{ds(on)}
- Good stability and uniformity with high EAS
- ROHS Compliant & Halogen-Free

Applications

- High side switch for full bridge converter
- DC/DC Converters

Pin Description


V _{DSS}	-30	V
R _{DS(ON)-Max}	20	mΩ
I _D	-35	A

Absolute Maximum Ratings (T_C=25°C unless otherwise noted)

Parameter	Symbol	Limit	Unit
Drain-Source Voltage	V _{DS}	-30	V
Gate-Source Voltage	V _{GS}	±20	V
Drain Current-Continuous	I _D	-35	A
Drain Current-Continuous(T _C =100°C)	I _D	-23.2	A
Pulsed Drain Current	I _{DM}	-120	A
Maximum Power Dissipation	P _D	60	W
Derating factor		0.4	W/°C
Single pulse avalanche energy ^(Note 5)	E _{AS}	169	mJ
Operating Junction and Storage Temperature Range	T _J , T _{STG}	-55 To 175	°C

Thermal Characteristic

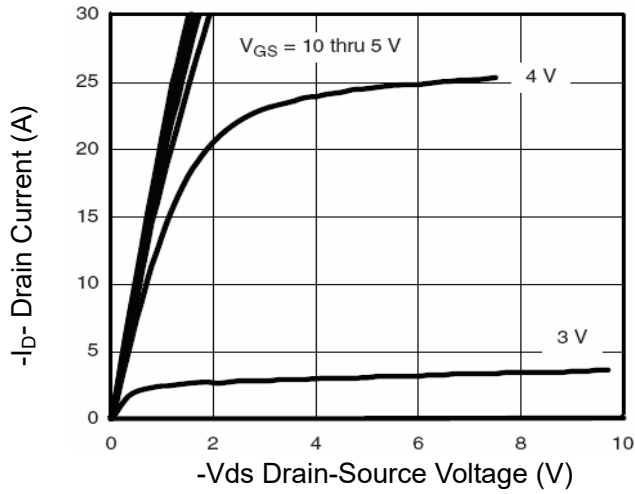
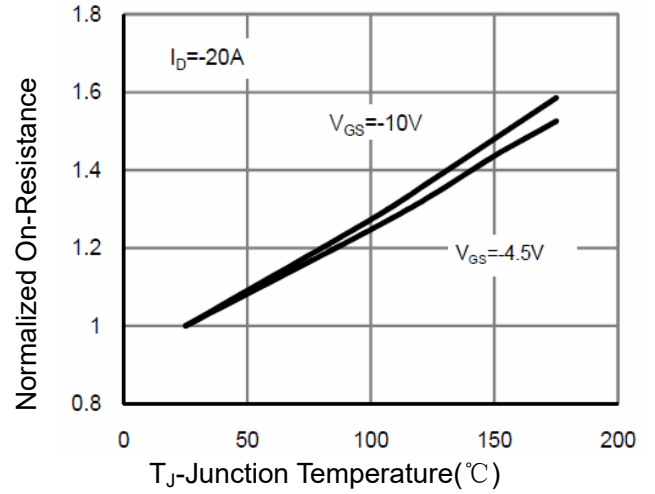
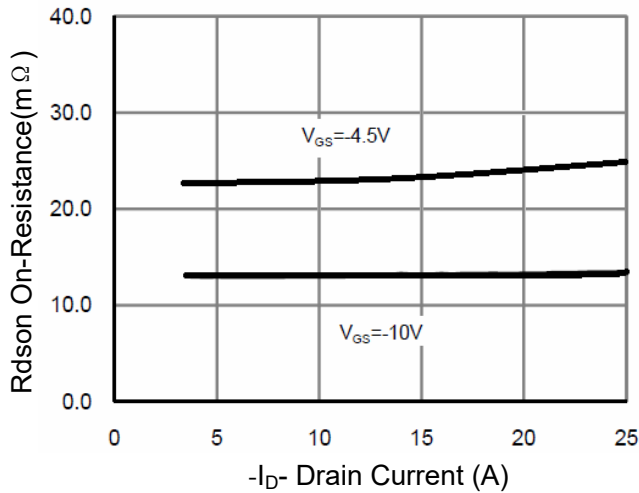
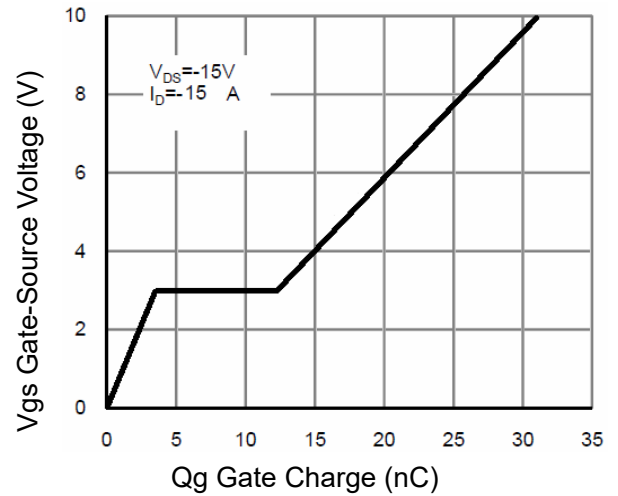
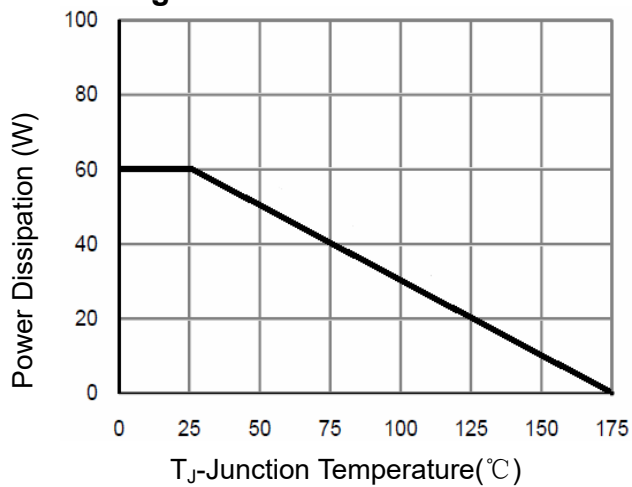
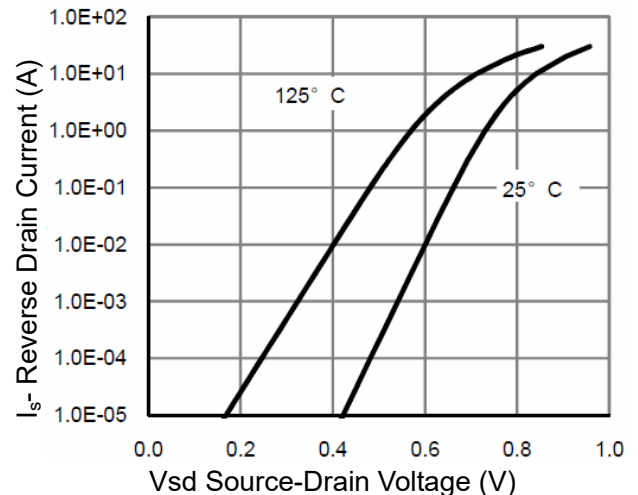
Thermal Resistance, Junction-to-Case ^(Note 2)	R _{θJC}	2.5	°C/W
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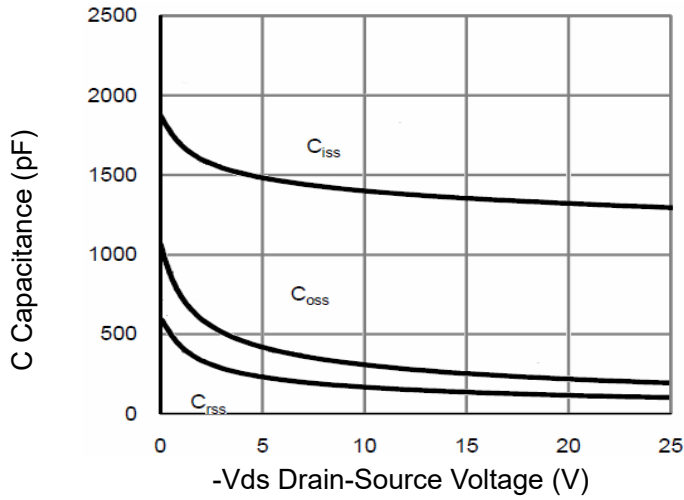
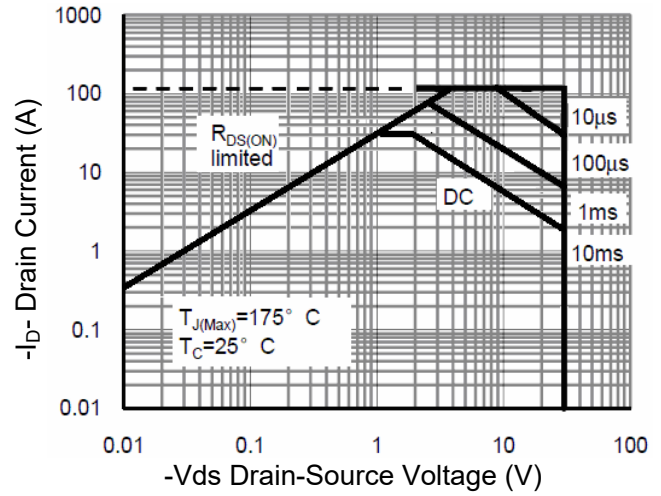
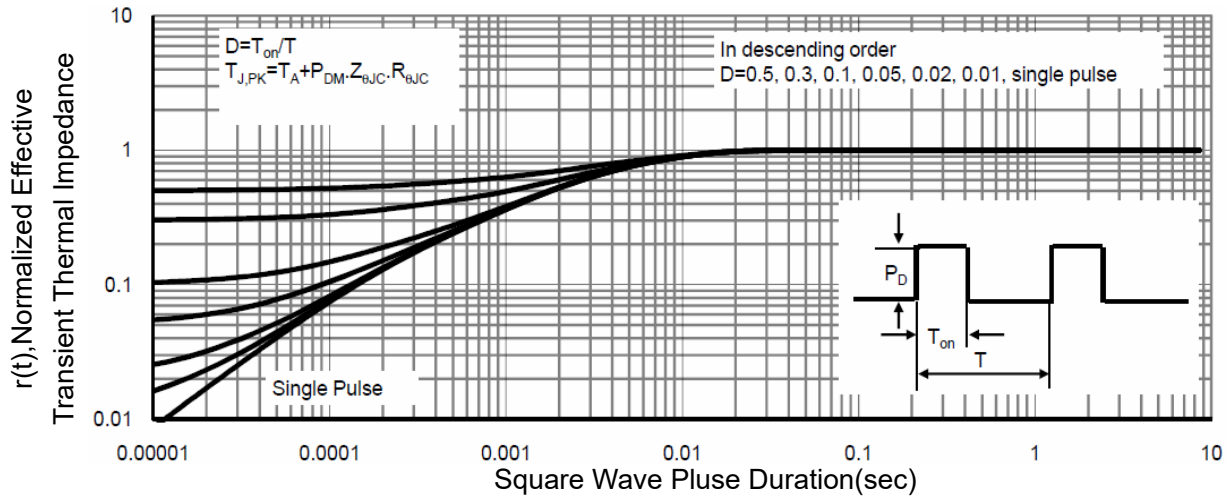
**P-Channel Enhancement Mode MOSFET****Electrical Characteristics ($T_C=25^{\circ}\text{C}$ unless otherwise noted)**

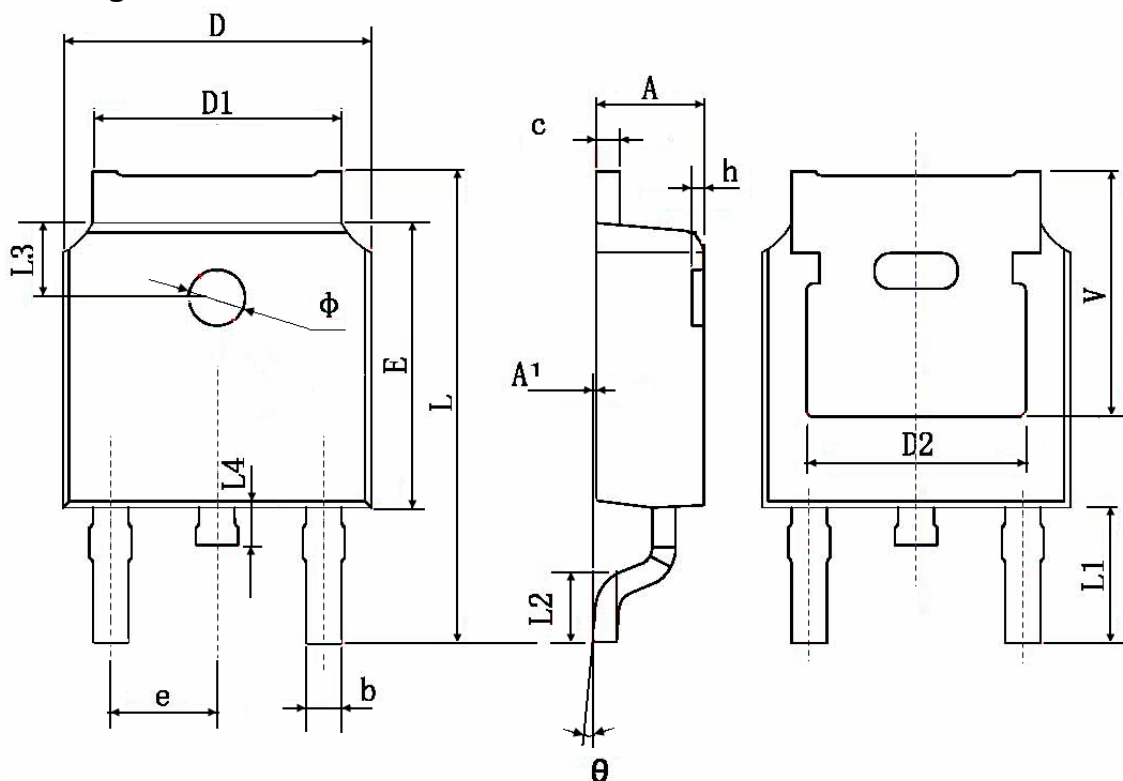
Parameter	Symbol	Condition	Min	Typ	Max	Unit
Off Characteristics						
Drain-Source Breakdown Voltage	BV_{DSS}	$V_{GS}=0V, I_D=-250\mu A$	-30	-	-	V
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS}=-30V, V_{GS}=0V$	-	-	-1	μA
Gate-Body Leakage Current	I_{GSS}	$V_{GS}=\pm 20V, V_{DS}=0V$	-	-	± 100	nA
On Characteristics (Note 3)						
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=-250\mu A$	-1.0	-1.6	-2.5	V
Drain-Source On-State Resistance	$R_{DS(on)}$	$V_{GS}=-10V, I_D=-20A$	-	14	20	m Ω
		$V_{GS}=-4.5V, I_D=-15A$	-	22	30	m Ω
Forward Transconductance	g_{FS}	$V_{DS}=-5V, I_D=-20A$	-	25	-	S
Dynamic Characteristics (Note 4)						
Input Capacitance	C_{iss}	$V_{DS}=-15V, V_{GS}=0V,$ $F=1.0\text{MHz}$	-	1380	-	PF
Output Capacitance	C_{oss}		-	255	-	PF
Reverse Transfer Capacitance	C_{rss}		-	200	-	PF
Switching Characteristics (Note 4)						
Turn-on Delay Time	$t_{d(on)}$	$V_{DD}=-30V, R_L=3\Omega,$ $V_{GS}=-10V, R_G=2.5\Omega$	-	9	-	nS
Turn-on Rise Time	t_r		-	10	-	nS
Turn-Off Delay Time	$t_{d(off)}$		-	50	-	nS
Turn-Off Fall Time	t_f		-	20	-	nS
Total Gate Charge	Q_g	$V_{DS}=-15V, I_D=-15A,$ $V_{GS}=-10V$	-	32.5	-	nC
Gate-Source Charge	Q_{gs}		-	3.2	-	nC
Gate-Drain Charge	Q_{gd}		-	9.2	-	nC
Drain-Source Diode Characteristics						
Diode Forward Voltage (Note 3)	V_{SD}	$V_{GS}=0V, I_S=-15A$	-	-	-1.2	V
Diode Forward Current (Note 2)	I_S		-	-	-20	A
Reverse Recovery Time	t_{rr}	$T_J = 25^{\circ}\text{C}, I_F = -15A$ $di/dt = -100A/\mu s$ (Note 3)	-	22	-	nS
Reverse Recovery Charge	Q_{rr}		-	15	-	nC

Notes:

1. Repetitive Rating: Pulse width limited by maximum junction temperature.
2. Surface Mounted on FR4 Board, $t \leq 10$ sec.
3. Pulse Test: Pulse Width $\leq 300\mu s$, Duty Cycle $\leq 2\%$.
4. Guaranteed by design, not subject to production
5. E_{AS} condition: $T_J=25^{\circ}\text{C}, V_{DD}=-15V, V_G=-10V, L=0.5\text{mH}, R_g=25\Omega, I_{AS}=-26A$

P-Channel Enhancement Mode MOSFET
Typical Characteristics $T_J = 25^\circ\text{C}$, unless otherwise noted

Figure 1 Output Characteristics

Figure 2 $R_{ds(on)}$ -Junction Temperature

Figure 3 $R_{ds(on)}$ - Drain Current

Figure 4 Gate Charge

Figure 5 Power De-rating

Figure 6 Source- Drain Diode Forward

P-Channel Enhancement Mode MOSFET

Figure 7 Capacitance vs Vds

Figure 8 Safe Operation Area

Figure 9 Normalized Maximum Transient Thermal Impedance

P-Channel Enhancement Mode MOSFET
TO-252 Package Information


Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	2.200	2.400	0.087	0.094
A1	0.000	0.127	0.000	0.005
b	0.660	0.860	0.026	0.034
c	0.460	0.580	0.018	0.023
D	6.500	6.700	0.256	0.264
D1	5.100	5.460	0.201	0.215
D2	4.830 TYP.		0.190 TYP.	
E	6.000	6.200	0.236	0.244
e	2.186	2.386	0.086	0.094
L	9.800	10.400	0.386	0.409
L1	2.900 TYP.		0.114 TYP.	
L2	1.400	1.700	0.055	0.067
L3	1.600 TYP.		0.063 TYP.	
L4	0.600	1.000	0.024	0.039
Φ	1.100	1.300	0.043	0.051
θ	0°	8°	0°	8°
h	0.000	0.300	0.000	0.012
V	5.350 TYP.		0.211 TYP.	