

FH3060D

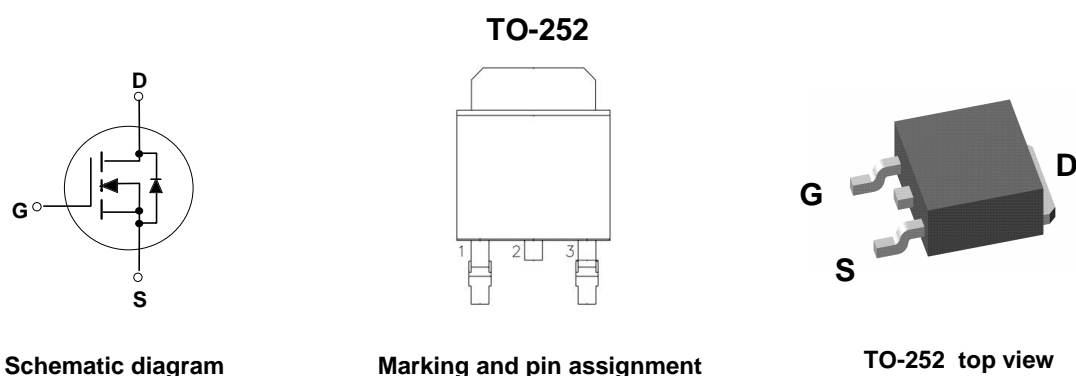
30V N-Channel MOSFET

■ Features

- 30V/60A
 $R_{DS(ON)} = 8.5m\Omega$ typ @ $V_{GS} = 10V$
 $R_{DS(ON)} = 11.5m\Omega$ typ @ $V_{GS} = 4.5V$
- Lead free and Green Device Available

■ Applications

- Power switching application
- Load switching
- Uninterruptible power supply



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

Symbol	Parameter	Maximum	Unit	
V_{DSS}	Drain-to-Source Voltage	30	V	
V_{GSS}	Gate-to-Source Voltage	± 20	V	
I_D	Continuous Drain Current	$T_C = 25^\circ C$	60	A
		$T_C = 100^\circ C$	37	A
I_{DP}	Pulsed Drain Current	$T_C = 25^\circ C$	148	A
PD	Maximum Power Dissipation	$T_C = 25^\circ C$	54	W
		$T_C = 100^\circ C$	21	
T_J T_{STG}	Junction & Storage Temperature Range	-55~150	$^\circ C$	

Thermal Characteristics

Symbol	Parameter	Typical	Unit
$R_{\theta jc}$	Thermal Resistance-Junction to Case	2.3	$^\circ C/W$
$R_{\theta ja}$	Thermal Resistance-Junction to Ambient	62.5	

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

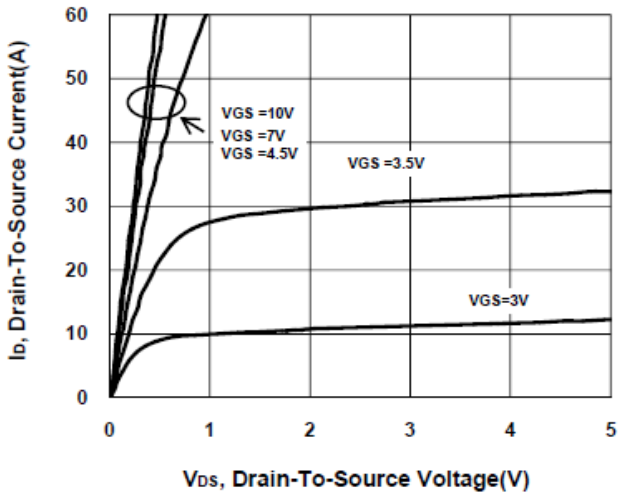
Symbol	Parameter	Test Conditions	Min.	Typ	Max.	Unit
Static Characteristics						
BV _{DSS}	Drain-Source Breakdown Voltage	V _{GS} =0V, I _D =250μA	30	—	—	V
I _{DSS}	Zero Gate Voltage Drain Current	V _{DS} =30V, V _{GS} =0V	—	—	1	μA
		T _J =85°C	—	—	10	
V _{GS(th)}	Gate Threshold Voltage	V _{DS} =V _{GS} , I _D =250μA	1	1.7	3	V
I _{GSS}	Gate Leakage Current	V _{GS} =±20V, V _{DS} =0V	—	—	±100	nA
R _{DS(on)} ¹	Drain-Source On-Resistance	V _{GS} =10V, I _D =15A	—	8.5	10	mΩ
		V _{GS} =4.5V, I _D =15A	—	11.5	15	
Diode Characteristics						
V _{SD} ¹	Diode Forward Voltage	I _{SD} =15A, V _{GS} =0V	—	0.88	1.3	V
I _S	Diode Continuous Forward Current				60	A
t _{rr}	Reverse Recovery Time	I _F =15A,	—	23		ns
Q _{rr}	Reverse Recovery Charge	dI/dt=100A/μs	—	15		nC
Dynamic Characteristics²						
R _G	Gate Resistance	V _{GS} =0V, V _{DS} =0V, Frequency=1MHz	—	1.5	—	Ω
C _{iss}	Input Capacitance	V _{GS} =0V, V _{DS} =30V Frequency=1MHz	—	920		pF
C _{oss}	Output Capacitance		—	187		
C _{rss}	Reverse Transfer Capacitance		—	130		
t _{d(on)}	Turn-On Delay Time	V _{DD} =15V, R _L =30Ω I _D =15A, V _{GS} =10V R _G =6Ω	—	15		ns
t _r	Turn-On Rise Time		—	25		
t _{d(off)}	Turn-Off Delay Time		—	60		
t _f	Turn-Off Fall Time		—	17		
Gate Charge Characteristics²						
Q _g	Total Gate Charge	V _{DS} =15V, V _{GS} =10V I _D =15A	—	22		nC
Q _{gs}	Gate-to-Source Charge		—	5		
Q _{gd}	Gate-to-Drain Charge		—	6.5		

Note: 1: Pulse test; pulse width ≤ 300ns, duty cycle ≤ 2%.

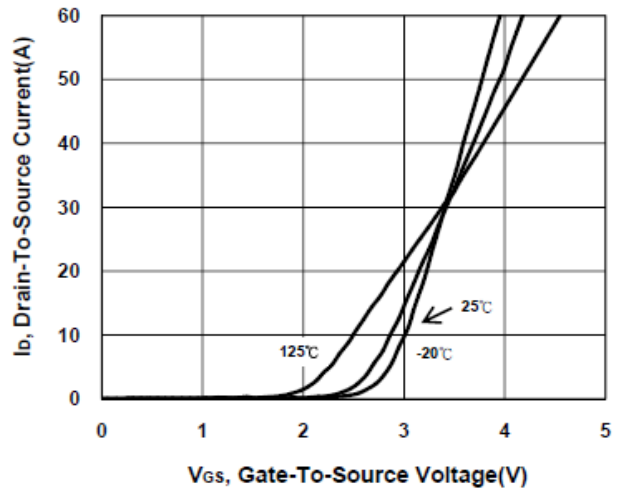
2: Guaranteed by design, not subject to production testing.

Typical Operating Characteristics

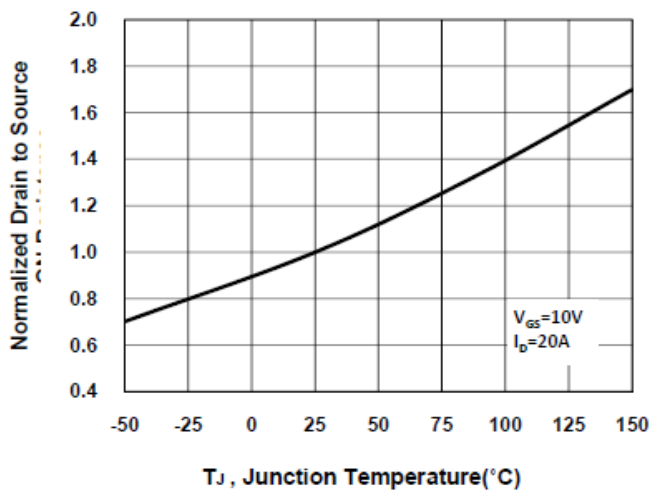
Output Characteristics



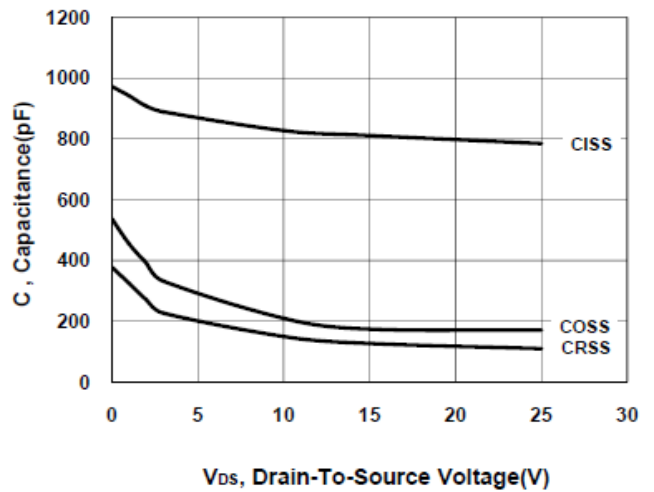
Transfer Characteristics



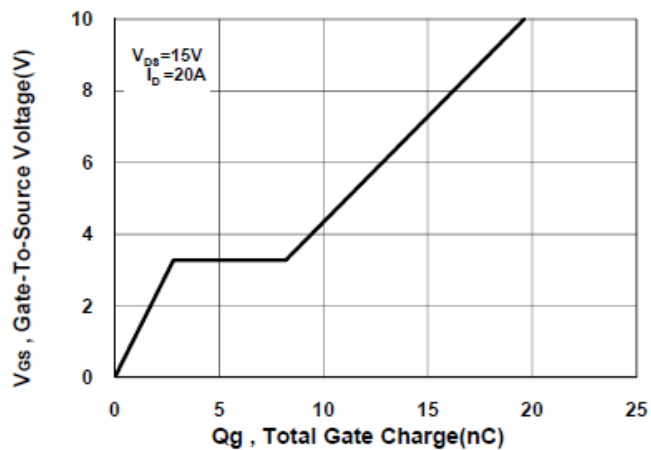
On-Resistance VS Temperature



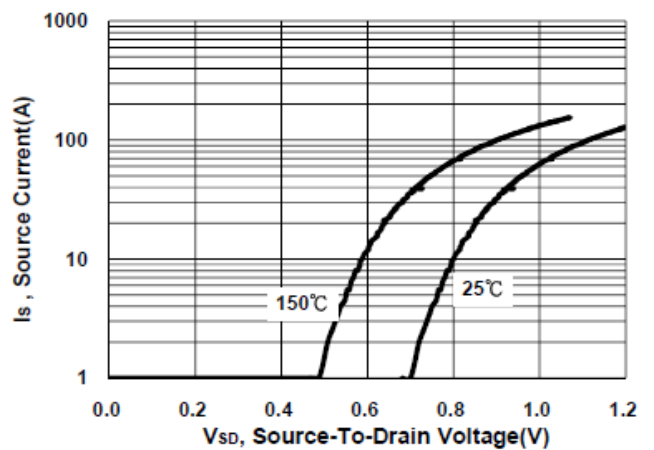
Capacitance Characteristic



Gate charge Characteristics

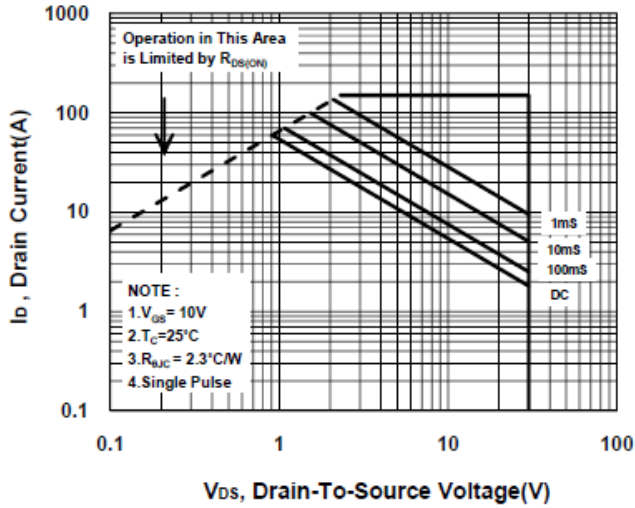


Source-Drain Diode Forward Voltage

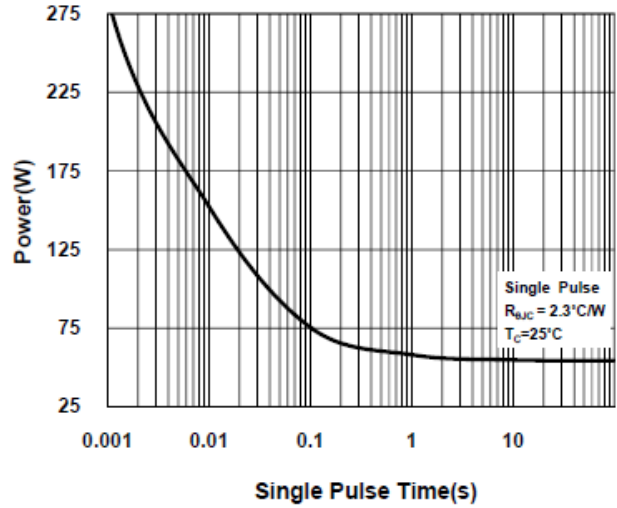


Typical Operating Characteristics

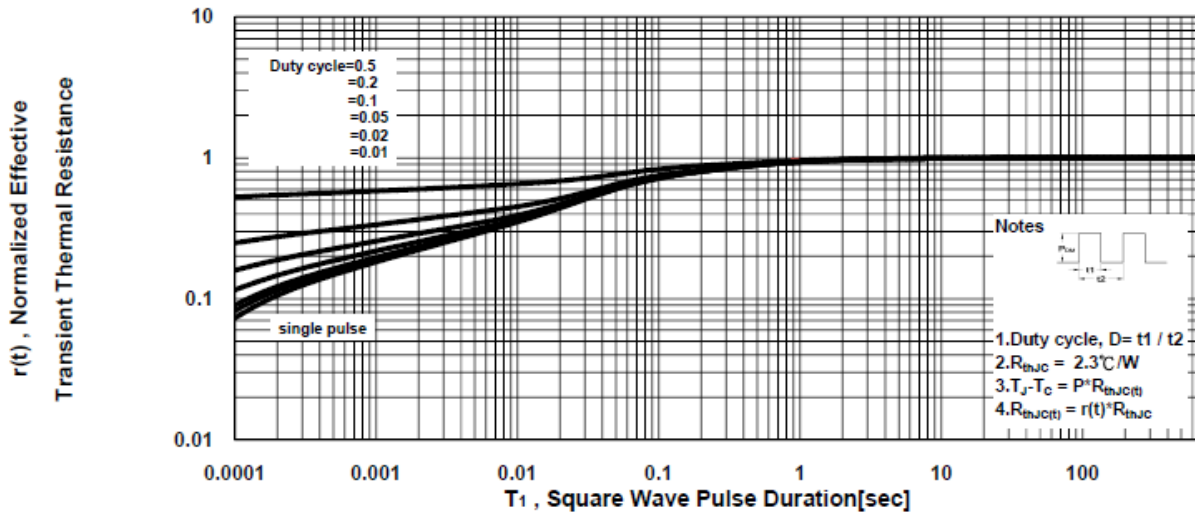
Safe Operating Area



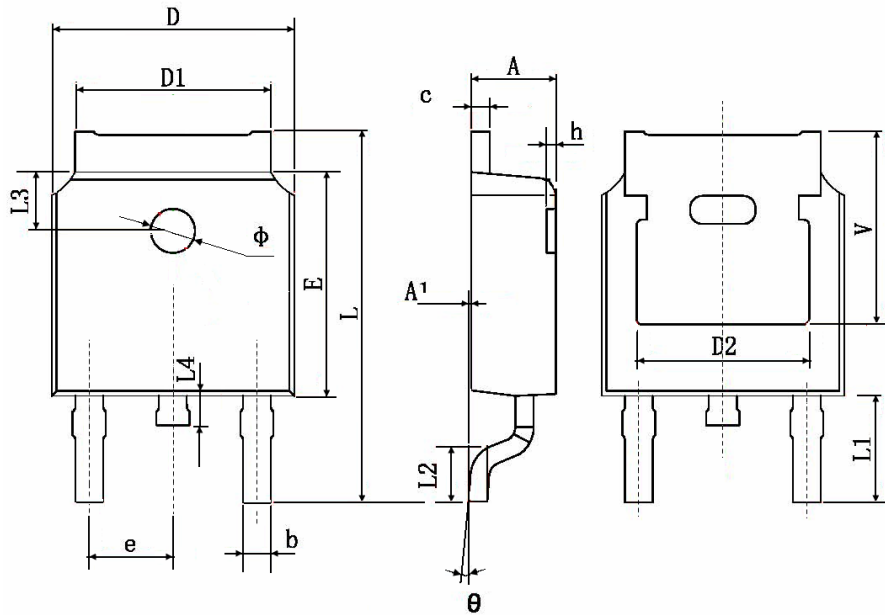
Single Pulse Maximum Power Dissipation



Transient Thermal Response Curve



Package Information : TO-252



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.	