

Product Summary

$V_{(BR)DSS}$	$R_{DS(on)TYP}$	I_D
-60V	30mΩ@-10V	-30A
	38mΩ@-4.5V	

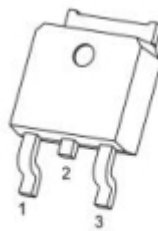
Feature

- $V_{DS} = -60V, I_D = -30A$
 $R_{DS(ON)} < 40m\Omega @ V_{GS} = -10V$ (Typ: 30mΩ)
- High switching speed
- Improved dv/dt capability
- Low Gate Charge
- Low reverse transfer capacitance

Application

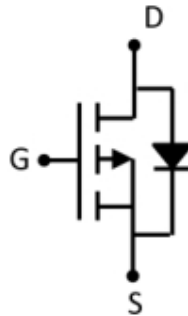
- Load Switches, Adaptor Switch
- Notebook PCs

Package



TO-252-2L(G:1 D:2 S:3)

Circuit diagram



Marking



60P30 =Device Code
****** =Week Code

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
Drain Current-Continuous	I_D	-30	A
Pulse Drain Current Tested	I_{DM}	-120	A
Maximum Power Dissipation	P_D	60	W
Thermal Resistance-Junction to Case	$R_{\theta JC}$	2.1	$^{\circ}\text{C/W}$
Operating Junction and Storage Temperature Range	T_{STG}, T_J	-55 to 150	$^{\circ}\text{C}$

Electrical characteristics

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

Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Static Characteristics						
Drain-Source Breakdown Voltage	BV (BR)DSS	V _{GS} = 0V, I _D = -250μA	-60			V
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} = -60V, V _{GS} = 0V			-1	uA
Gate-Source Leakage	I _{GSS}	V _{GS} = ±20V, V _{DS} = 0V			±100	uA
Gate-Source Threshold Voltage	V _{GS(th)}	V _{DS} = V _{GS} , I _D = -250μA	-1	-1.5	-2.5	V
Drain-Source On-Resistance	R _{DS(on)}	V _{GS} = -10V, I _D = -5A		30	40	mΩ
		V _{GS} = -4.5V, I _D = -4A		38	50	
Dynamic Characteristics						
Input Capacitance	C _{iss}	V _{DS} = -30V, V _{GS} =0V, f=1MHz		2417		pF
Output Capacitance	C _{oss}			179		
Reverse Transfer Capacitance	C _{rss}			120		
Switching Characteristics						
Turn-on Delay Time	T _{d(on)}	V _{DD} = -30V, R _L =4.7Ω, V _{GS} = -10V, R _{GEN} =3Ω		9.8		nS
Turn-on Rise Time	T _r			6.1		
Turn-off Delay Time	T _{d(off)}			44		
Turn-off Fall Time	T _f			12.7		
Total Gate Charge	Q _g	V _{DS} = -30V, V _{GS} = -10V, I _D = -6.2A		46.5	55	nC
Gate-Source Charge	Q _{gs}			9.1		
Gate-Drain Charge	Q _{gd}			9.2		
Drain-Source Diode Characteristics						
Diode Forward Voltage	V _{SD}	I _{SD} = -1A,V _{GS} =0V			-1	V

Typical Characteristics

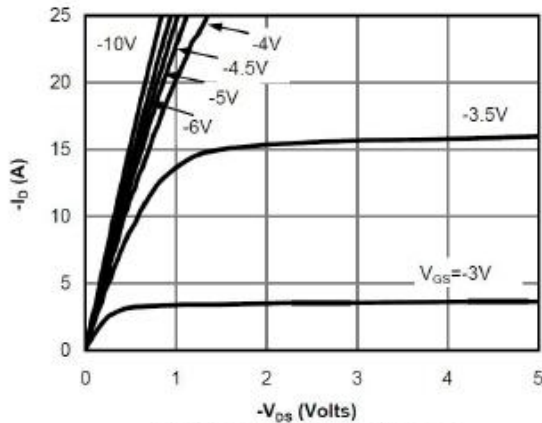


Fig 1: On-Region Characteristics

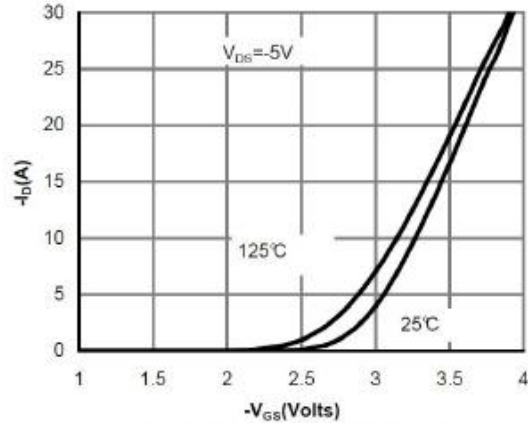


Figure 2: Transfer Characteristics

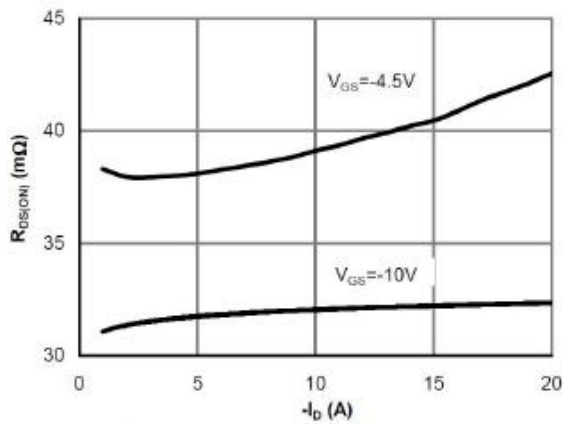


Figure 3: On-Resistance vs. Drain Current and Gate Voltage

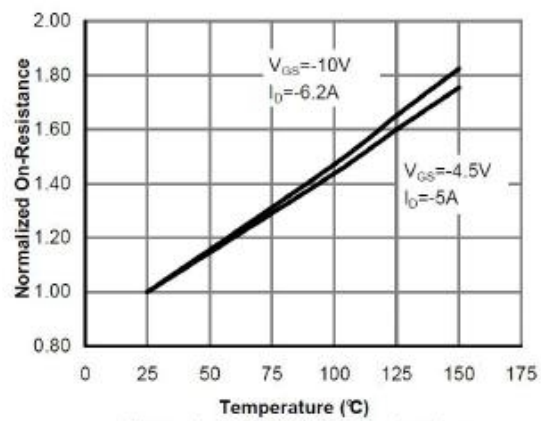


Figure 4: On-Resistance vs. Junction Temperature

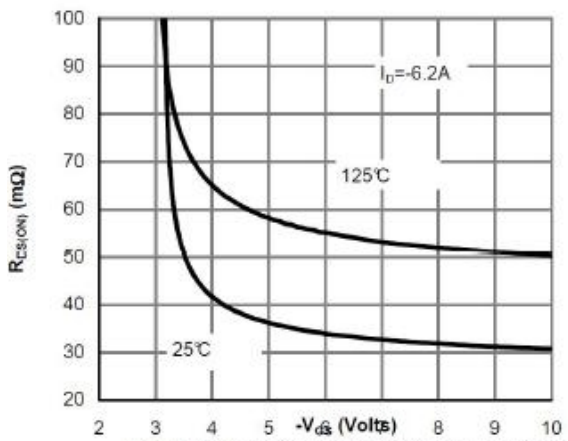


Figure 5: On-Resistance vs. Gate-Source Voltage

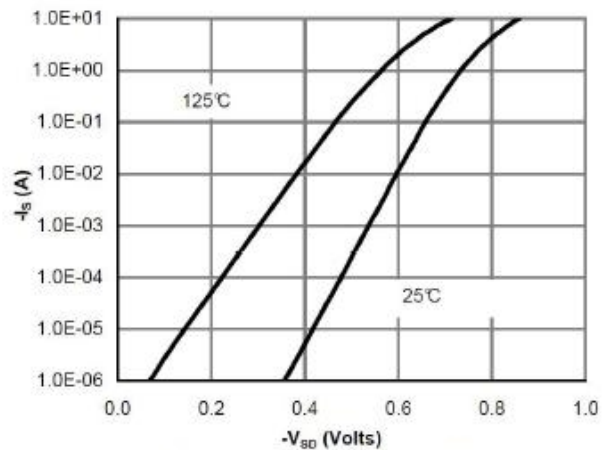


Figure 6: Body-Diode Characteristics

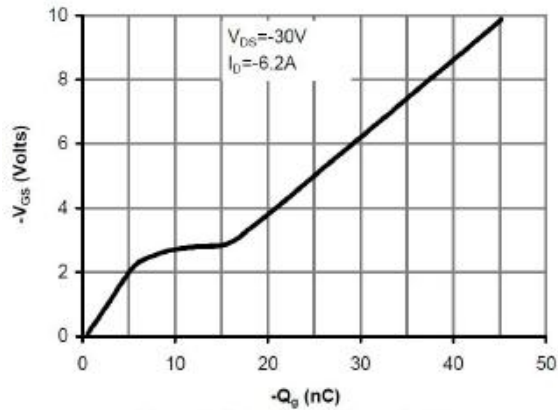


Figure 7: Gate-Charge Characteristics

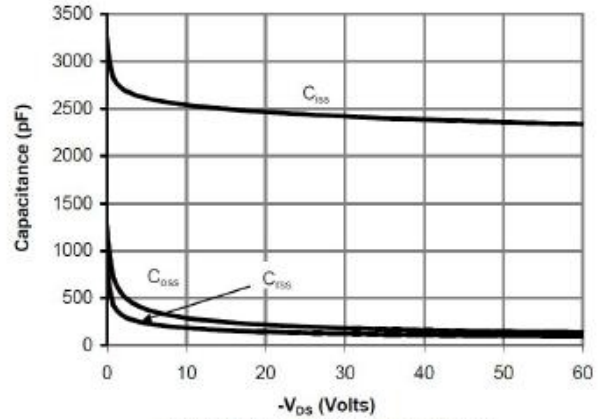


Figure 8: Capacitance Characteristics

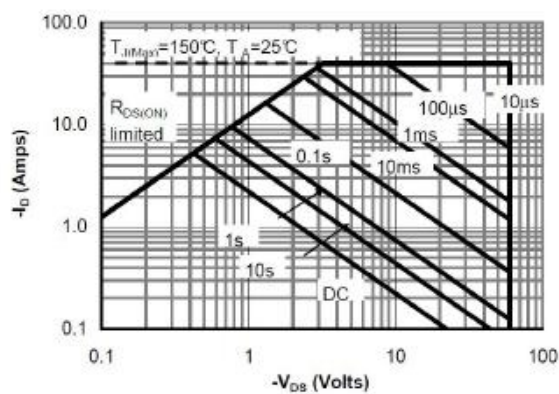


Figure 9: Maximum Forward Biased Safe Operating Area (Note E)

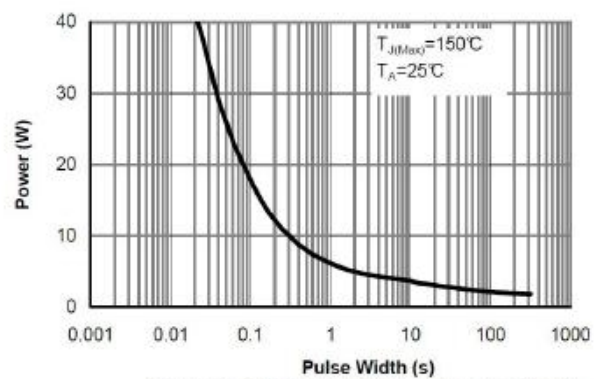


Figure 10: Single Pulse Power Rating Junction-to-Ambient (Note E)

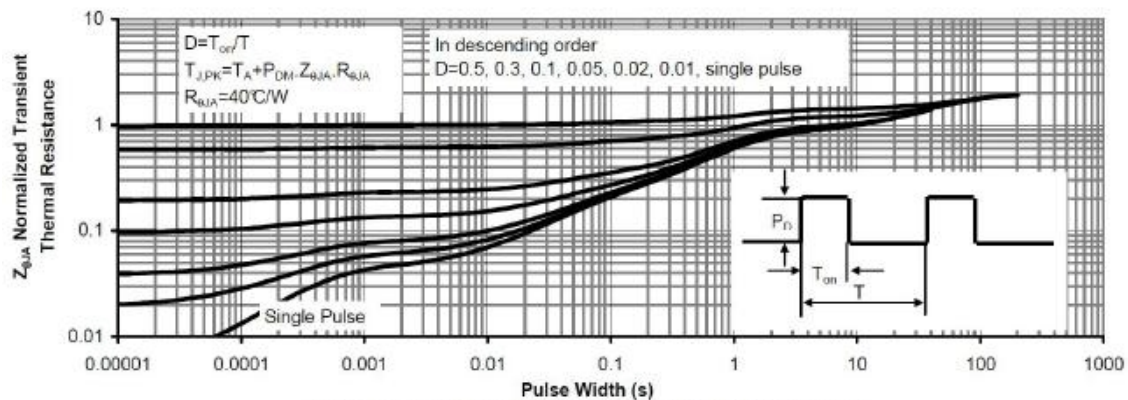
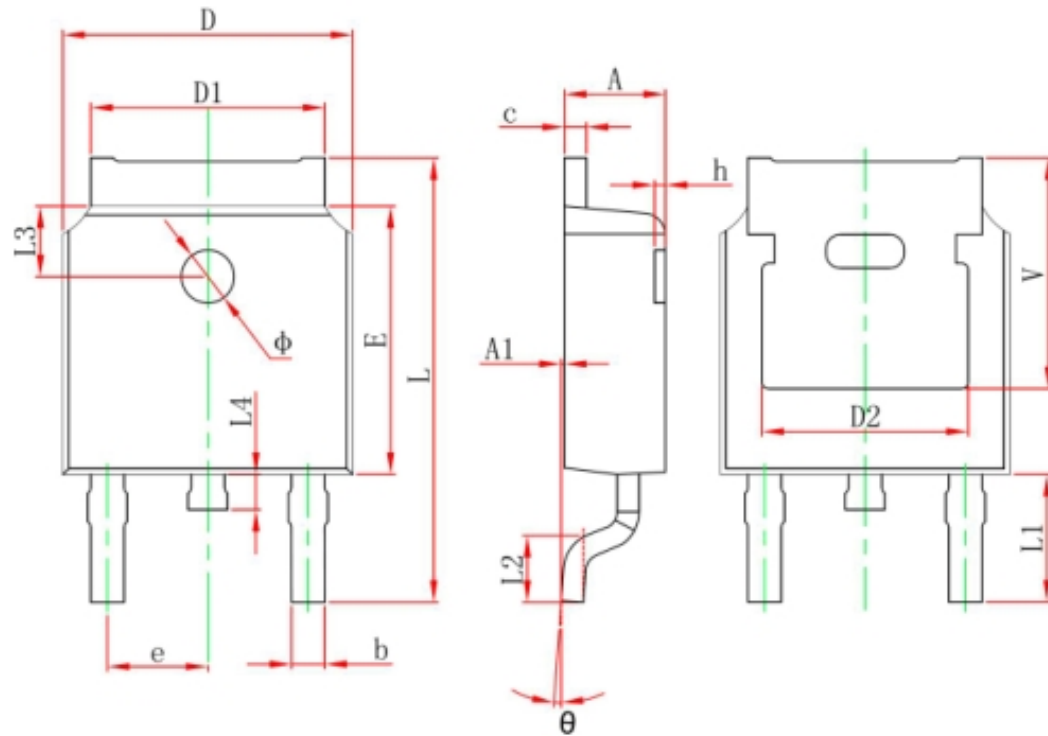


Figure 11: Normalized Maximum Transient Thermal Impedance

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 REF.		0.190 REF.	
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 REF.		0.114 REF.	
L2	1.400	1.700	0.055	0.067
L3	1.600 REF.		0.063 REF.	
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 REF.		0.211 REF.	