

Product Summary

$V_{(BR)DSS}$	$R_{DS(on)TYP}$	I_D
-60V	11mΩ@-10V	-80A
	14mΩ@-4.5V	

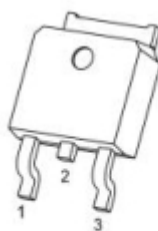
Feature

- High switching speed
- Improved dv/dt capability
- Low Gate Charge
- Low reverse transfer capacitance

Application

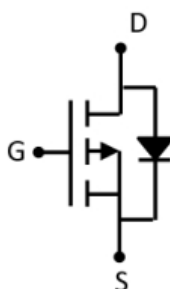
- Load Switches, Adaptor Switch
- Notebook PCs

Package



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

Circuit diagram



Marking



60P11 =Device Code
****** =Week Code

Absolute maximum ratings

(T_a=25°C unless otherwise noted)

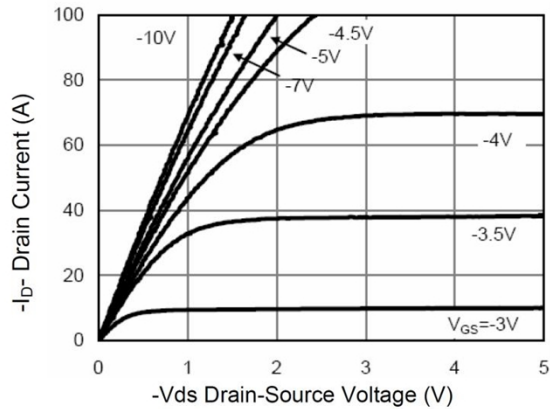
Parameter	Symbol	Value	Unit
Drain-Source Voltage	V _{DS}	-60	V
Gate-Source Voltage	V _{GS}	±20	V
Drain Current-Continuous (T _c =25°C)	I _D	-80	A
Pulsed Drain Current	I _{DM}	-320	A
Maximum Power Dissipation (T _c =25°C)	P _D	150	W
Thermal Resistance, Junction-to-Case	R _{θJC}	0.83	°C/W
Operating Junction and Storage Temperature Range	T _J , T _{STG}	-55~+150	°C

Electrical characteristics

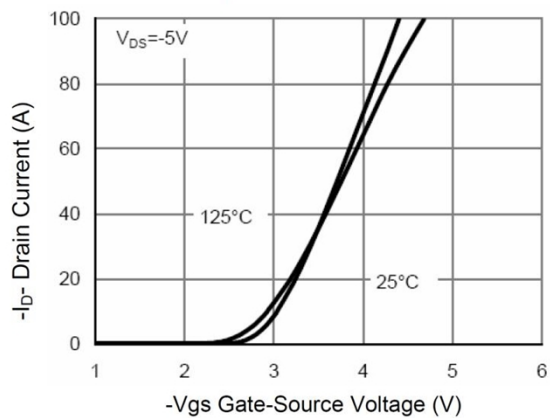
($T_A=25^{\circ}\text{C}$, unless otherwise noted)

Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Static Characteristics						
Drain-Source Breakdown Voltage	$BV_{(BR)DSS}$	$V_{GS} = 0V, I_D = -250\mu A$	-60			V
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS} = -48V, V_{GS} = 0V$			-1	μA
Gate-Source Leakage	I_{GSS}	$V_{GS} = \pm 20V, V_{DS} = 0V$			± 100	μA
Gate-Source Threshold Voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = -250\mu A$	-1	-1.5	-2.5	V
Drain-Source On-Resistance	$R_{DS(on)}$	$V_{GS} = -10V, I_D = -20A$		11	14	m Ω
		$V_{GS} = -4.5V, I_D = -20A$		14	18.5	
Dynamic Characteristics						
Input Capacitance	C_{iss}	$V_{DS} = -30V, V_{GS} = 0V,$ $f = 1MHz$		7700		pF
Output Capacitance	C_{oss}			489		
Reverse Transfer Capacitance	C_{rss}			364		
Switching Characteristics						
Turn-on Delay Time	$T_{d(on)}$	$V_{DD} = -30V, R_L = 4.7\Omega,$ $V_{GEN} = -10V, R_{GEN} = 3\Omega$		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	$V_{DS} = -30V, V_{GS} = -10V,$ $I_D = -20A$		85.5	55	nC
Gate-Source Charge	Q_{gs}			12.1		
Gate-Drain Charge	Q_{gd}			23.2		
Drain-Source Diode Characteristics						
Forward on voltage	V_{SD}	$I_{SD} = -1A, V_{GS} = 0V$			-1.2	V

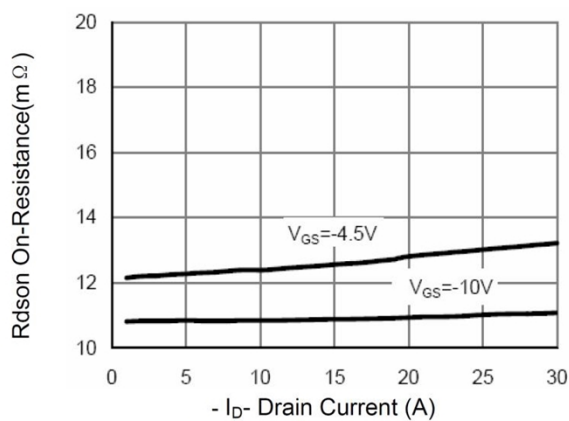
Typical Characteristics



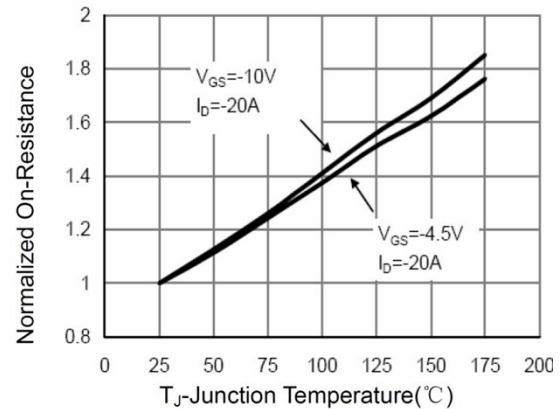
Output Characteristics



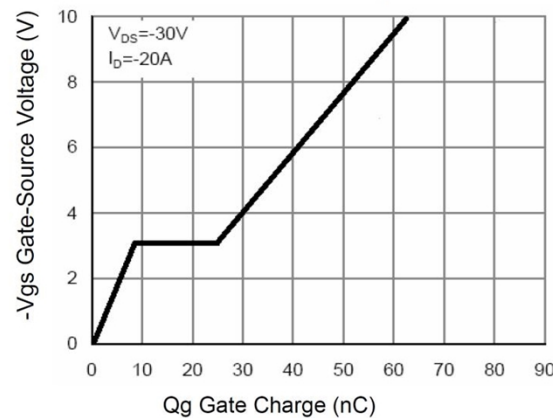
Transfer Characteristics



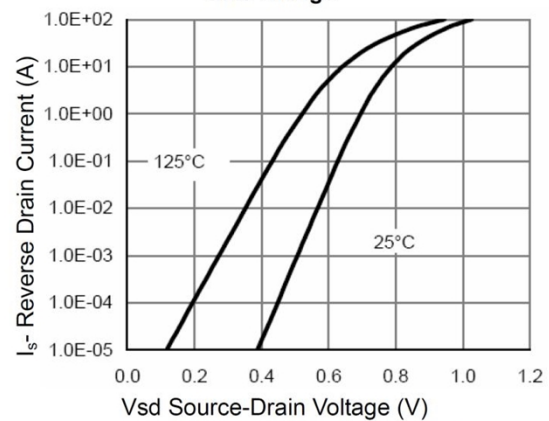
R_{dson} - Drain Current



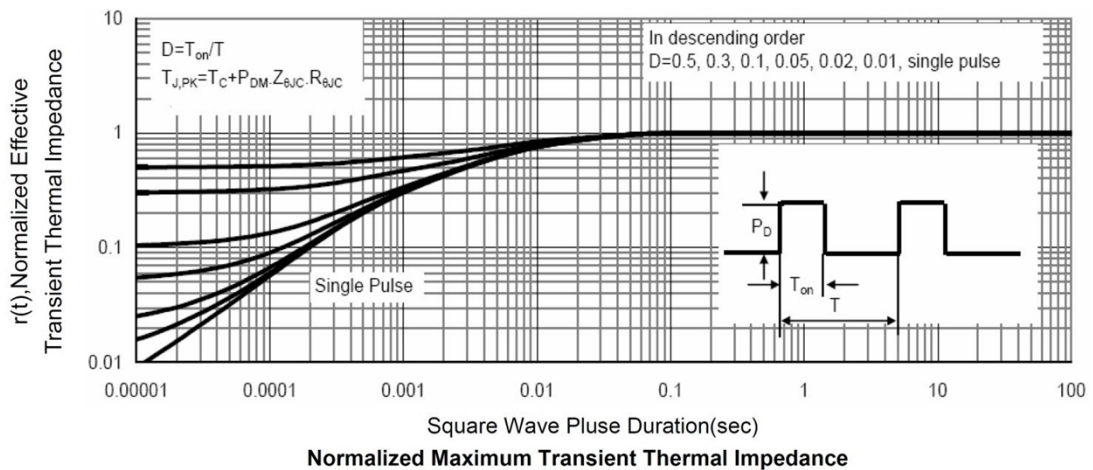
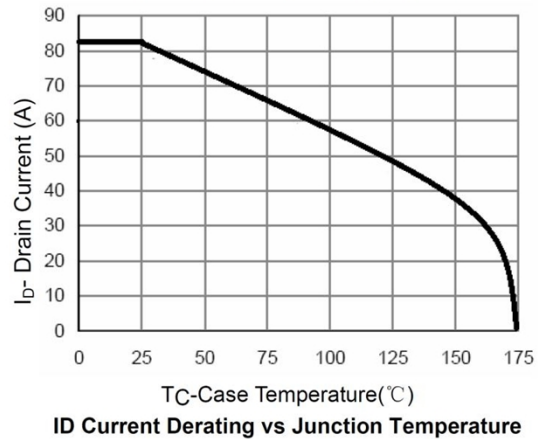
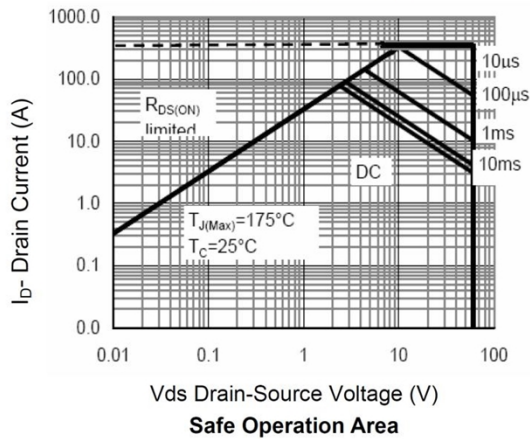
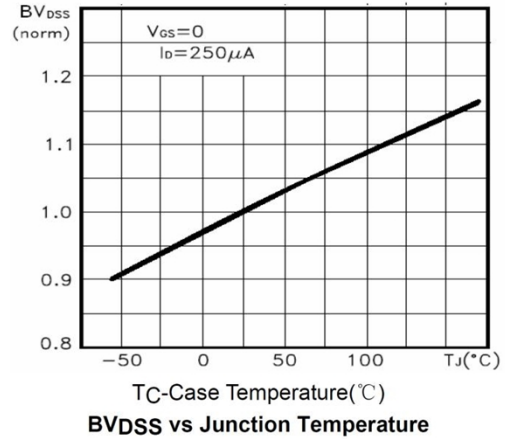
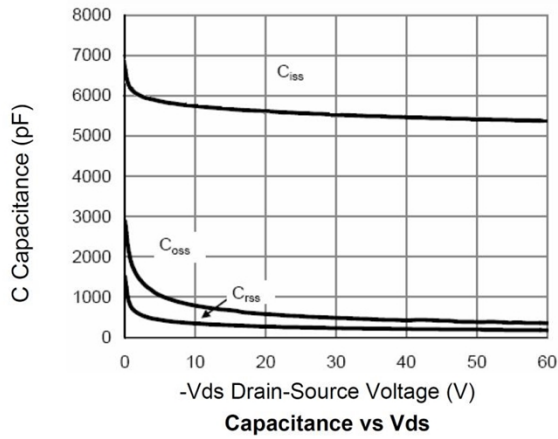
R_{dson} -Junction Temperature



Gate Charge



Source- Drain Diode Forward





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.	