

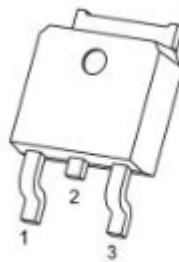
Product Summary

$V_{(BR)DSS}$	$R_{DS(on)TYP}$	I_D
40V	11mΩ@10V	35A
	14mΩ@4.5V	

Feature

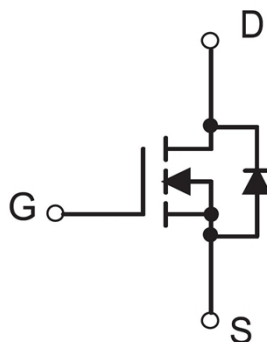
- High power and current handing capability
- Lead free product is acquired
- Surface mount package

Package

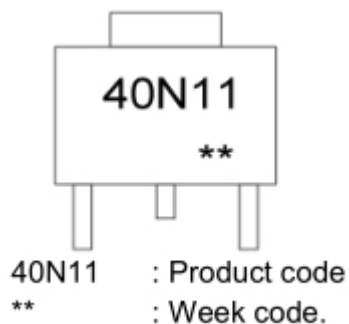


TO-252-2L(G:1 D:2 S:3)

Circuit diagram



Marking



Absolute maximum ratings

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

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	40	V
Gate-Source Voltage	V_{GS}	± 20	V
Drain Current-Continuous	I_D	35	A
Pulsed Drain Current	I_{DM}	83	A
Maximum Power Dissipation	P_D	34.7	W
Thermal Resistance,Junction-to-Ambient	$R_{\theta JA}$	3.6	$^{\circ}\text{C}/\text{W}$
Operating Junction and Storage Temperature Range	T_J, T_{STG}	-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
Off Characteristics						
Drain-Source Breakdown Voltage	BV (BR)DSS	V _{GS} = 0V, I _D =250μA	40			V
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} =40V,V _{GS} = 0V			1	uA
Gate-Body Leakage Current	I _{GSS}	V _{GS} = ±20V , V _{DS} =0V			±100	uA
Gate Threshold Voltage	V _{GS(th)}	V _{DS} =V _{GS} , I _D =250μA	1	1.5	2.5	V
Drain-Source On-State Resistance	R _{DS(on)}	V _{GS} =10V, I _D =8A V _{GS} =4.5V, I _D =4A		11 14	14 20	mΩ
Dynamic Characteristics						
Input Capacitance	C _{iss}	V _{DS} =20V, V _{GS} =0V, f=1MHz		964		pF
Output Capacitance	C _{Oss}			109		
Reverse Transfer Capacitance	C _{rss}			96		
Switching Characteristics						
Turn-On Delay Time	T _{d(on)}	V _{DD} =20V, R _L =2.5Ω, V _{GS} =10V, R _{GEN} =3Ω		5.5		nS
Rise Time	T _r			14		
Turn-Off Delay Time	T _{d(off)}			24		
Fall Time	T _f			12		
Total Gate Charge	Q _g	V _{DS} =20V, I _D =8A, V _{GS} =10V		22.9		pF
Gate-Source Charge	Q _{gs}			3.5		
Gate-Drain Charge	Q _{gd}			5.3		
Diode Characteristics						
Diode Forward Voltage	V _{SD}	V _{GS} =0V,I _S =9A		0.8	1.2	A

Typical Characteristics

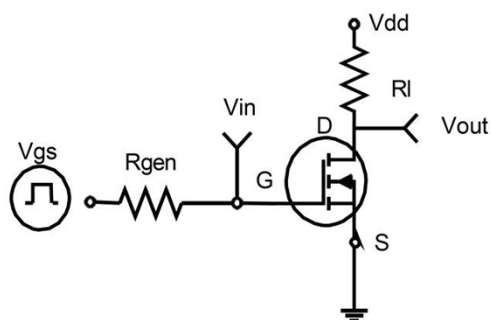


Figure 1: Switching Test Circuit

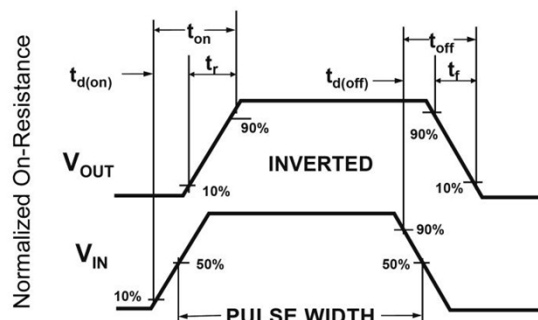


Figure 2: Switching Waveforms

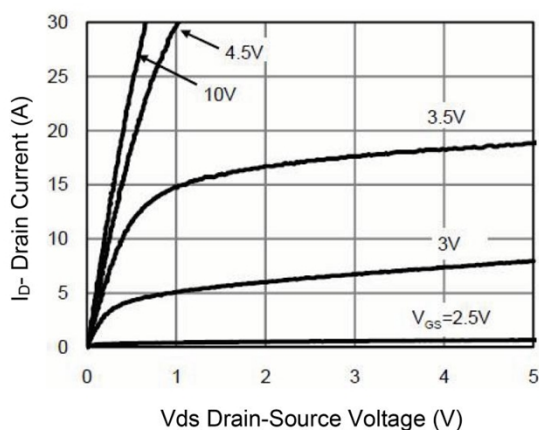


Figure 3: Output Characteristics

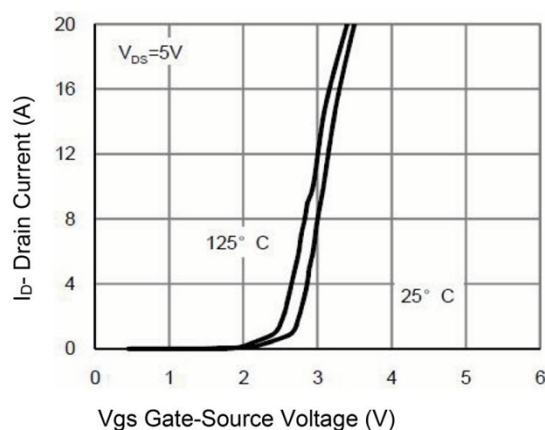


Figure 4: Transfer Characteristics

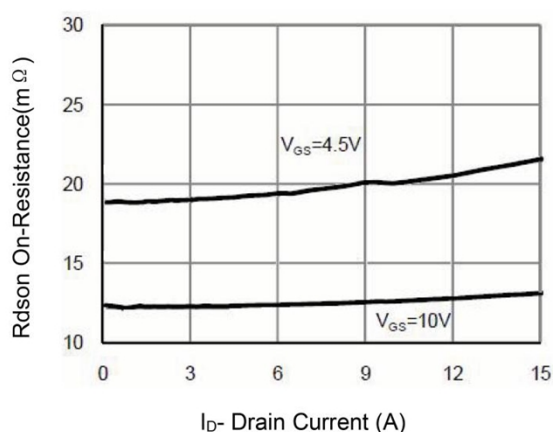


Figure 5: Drain-Source On-Resistance

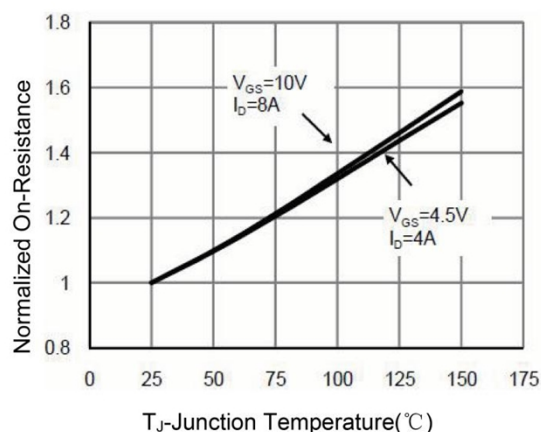
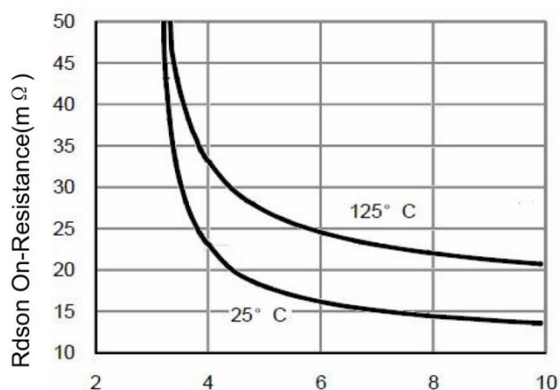
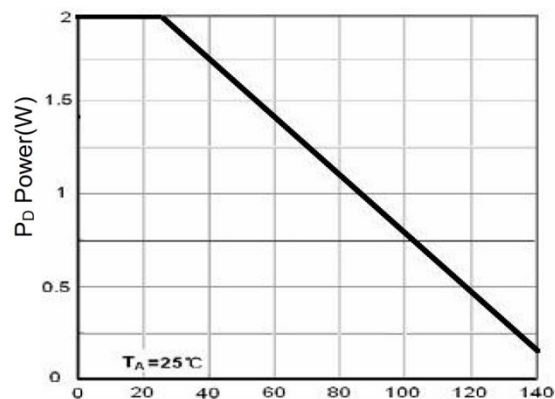


Figure 6: Drain-Source On-Resistance



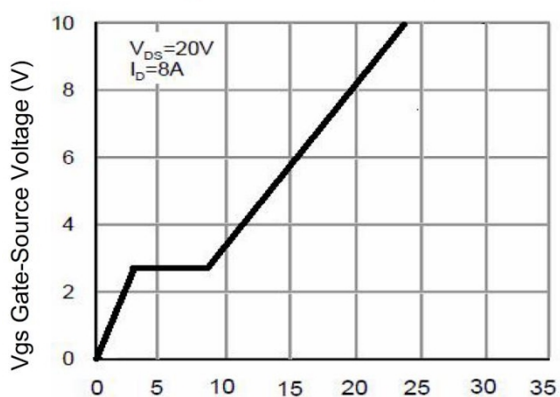
Vgs Gate-Source Voltage (V)

Figure 7 Rdson vs Vgs



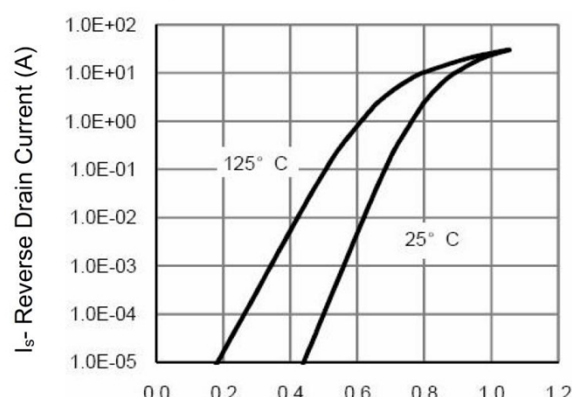
Tj Junction Temperature (°C)

Figure 8 Power Dissipation



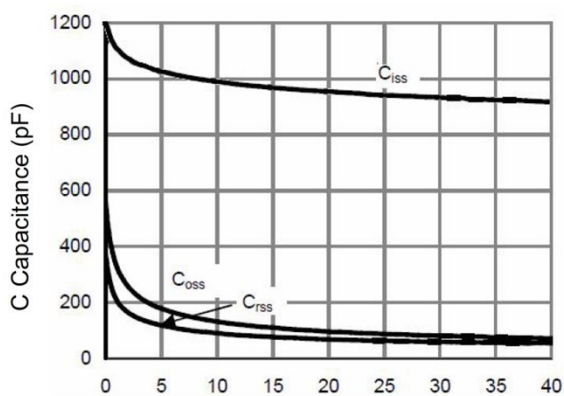
Qg Gate Charge (nC)

Figure 9 Gate Charge



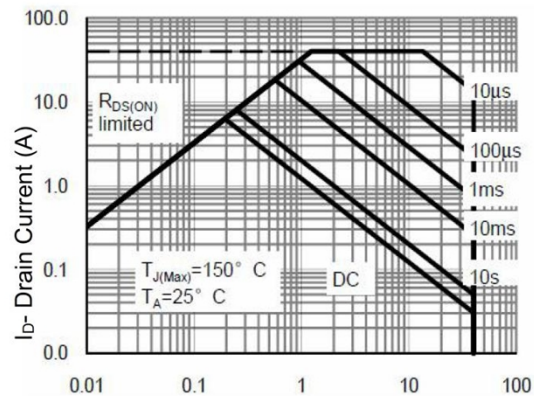
Vds Drain-Source Voltage (V)

Figure 10 Source-Drain Diode Forward



Vds Drain-Source Voltage (V)

Figure 11 Capacitance vs Vds



Vds Drain-Source Voltage (V)

Figure 12 Safe Operation Area

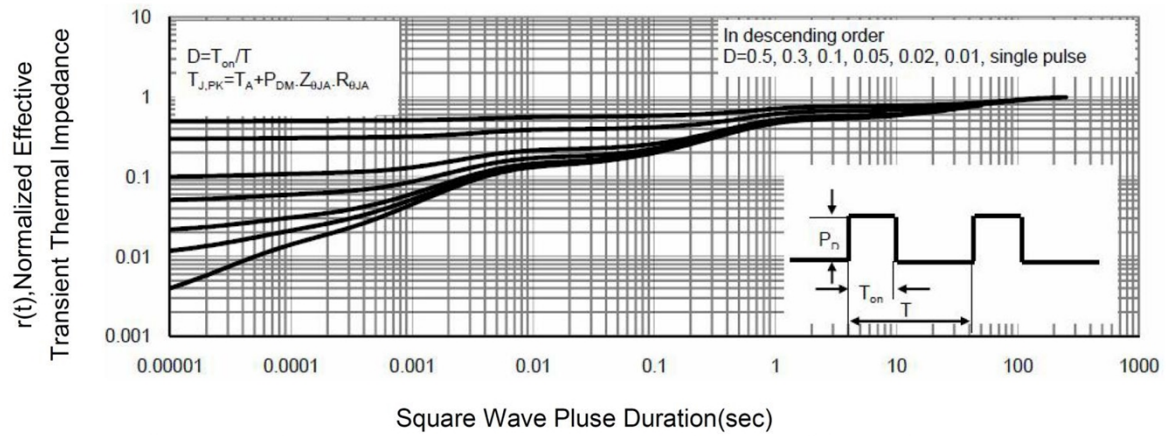
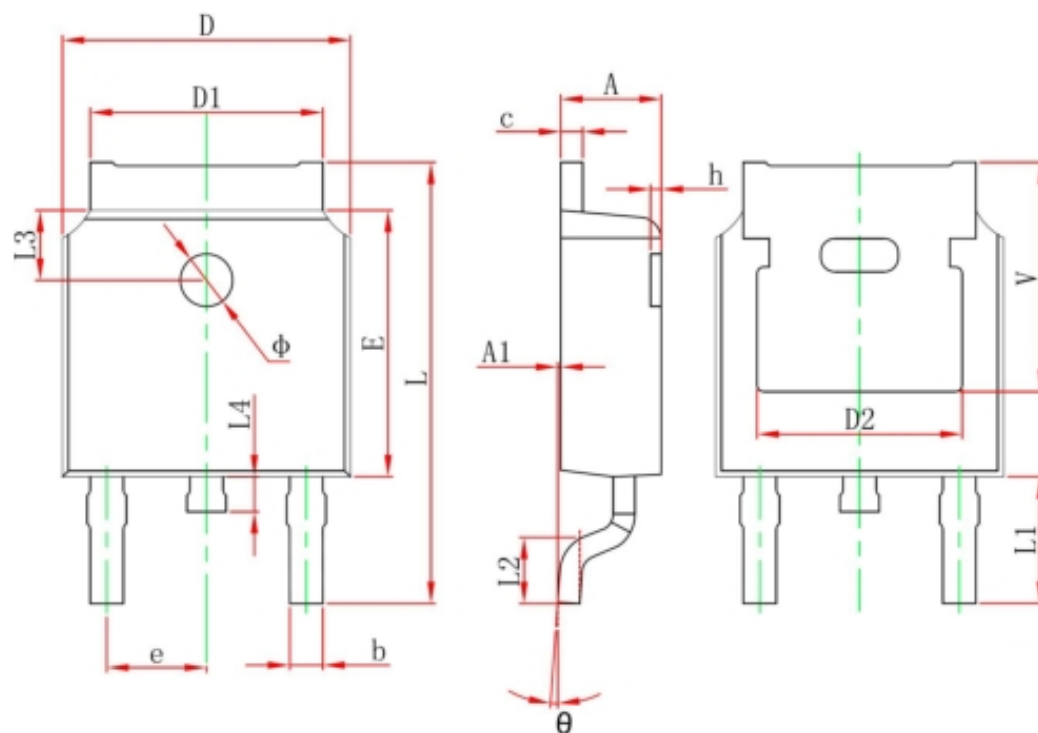


Figure 13 Normalized Maximum Transient Thermal Impedance

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.	