

Maximum Ratings (@T_A = +25°C, unless otherwise specified.)

Characteristic	Symbol	Value	Unit
Drain-Source Voltage	V _{DSS}	30	V
Gate-Source Voltage	V _{GSS}	±20	V
Continuous Drain Current, V _{GS} = 10V (Note 7)	I _D	80 60	A
Continuous Drain Current, V _{GS} = 10V (Note 6)	I _D	20 16	A
Pulsed Drain Current (10µs Pulse, Duty Cycle = 1%)	I _{DM}	100	A
Maximum Continuous Body Diode Forward Current (Note 6)	I _S	20	A
Pulsed Continuous Body Diode Forward Current (10µs Pulse, Duty Cycle = 1%)	I _{SM}	100	A
Avalanche Current, L = 0.1mH (Note 8)	I _{AS}	33	A
Avalanche Energy, L = 0.1mH (Note 8)	E _{AS}	55	mJ

Thermal Characteristics (@T_A = +25°C, unless otherwise specified.)

Characteristic	Symbol	Value	Unit
Total Power Dissipation (Note 5)	P _D	1.6	W
Thermal Resistance, Junction to Ambient (Note 5)	R _{θJA}	78	°C/W
Total Power Dissipation (Note 6)	P _D	3.4	W
Thermal Resistance, Junction to Ambient (Note 6)	R _{θJA}	37	°C/W
Total Power Dissipation (Note 7)	P _D	44	W
Thermal Resistance, Junction to Case (Note 7)	R _{θJC}	2.8	°C/W
Operating and Storage Temperature Range	T _J , T _{STG}	-55 to +150	°C

Electrical Characteristics (@T_A = +25°C, unless otherwise specified.)

Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
OFF CHARACTERISTICS (Note 9)						
Drain-Source Breakdown Voltage	BV _{DSS}	30	-	-	V	V _{GS} = 0V, I _D = 250µA
Zero Gate Voltage Drain Current	I _{DSS}	-	-	1	µA	V _{DS} = 24V, V _{GS} = 0V
Gate-Source Leakage	I _{GSS}	-	-	±100	nA	V _{GS} = ±20V, V _{DS} = 0V
ON CHARACTERISTICS (Note 9)						
Gate Threshold Voltage	V _{GS(TH)}	1	-	2.5	V	V _{DS} = V _{GS} , I _D = 250µA
Static Drain-Source On-Resistance	R _{DS(ON)}	-	2.5	5.5	mΩ	V _{GS} = 10V, I _D = 30A
		-	4.0	9.0		V _{GS} = 4.5V, I _D = 15A
Diode Forward Voltage	V _{SD}	-	0.7	1	V	V _{GS} = 0V, I _S = 1A
DYNAMIC CHARACTERISTICS (Note 10)						
Input Capacitance	C _{iss}	-	2000	-	pF	V _{DS} = 15V, V _{GS} = 0V, f = 1MHz
Output Capacitance	C _{oss}	-	315	-	pF	
Reverse Transfer Capacitance	C _{rss}	-	247	-	pF	
Gate Resistance	R _g	-	2.2	-	Ω	V _{DS} = 0V, V _{GS} = 0V, f = 1MHz
Total Gate Charge (V _{GS} = 4.5V)	Q _g	-	20	-	nC	V _{DS} = 15V, I _D = 15A
Total Gate Charge (V _{GS} = 10V)	Q _g	-	42	-	nC	
Gate-Source Charge	Q _{gs}	-	4.7	-	nC	
Gate-Drain Charge	Q _{gd}	-	7.4	-	nC	
Turn-On Delay Time	t _{D(ON)}	-	3.9	-	ns	V _{DD} = 15V, V _{GS} = 10V, R _G = 3.3Ω, I _D = 15A
Turn-On Rise Time	t _R	-	4.1	-	ns	
Turn-Off Delay Time	t _{D(OFF)}	-	31	-	ns	
Turn-Off Fall Time	t _F	-	15	-	ns	I _F = 15A, di/dt = 100A/µs
Reverse Recovery Time	t _{RR}	-	15	-	ns	
Reverse Recovery Charge	Q _{rr}	-	6.0	-	nC	

- Notes:
- Device mounted on FR-4 PC board, with minimum recommended pad layout, single sided.
 - Device mounted on FR-4 substrate PC board, 2oz copper, with thermal bias to bottom layer 1inch square copper plate.
 - Thermal resistance from junction to soldering point (on the exposed drain pad).
 - I_{AS} and E_{AS} ratings are based on low frequency and duty cycles to keep T_J = +25°C.
 - Short duration pulse test used to minimize self-heating effect.
 - Guaranteed by design. Not subject to product testing.

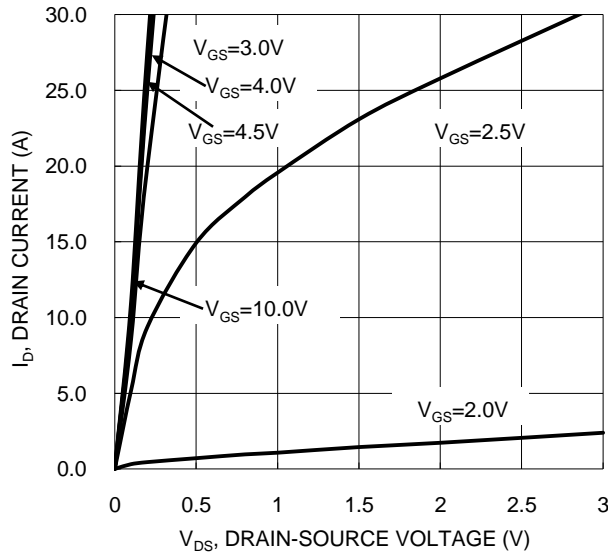


Figure 1. Typical Output Characteristic

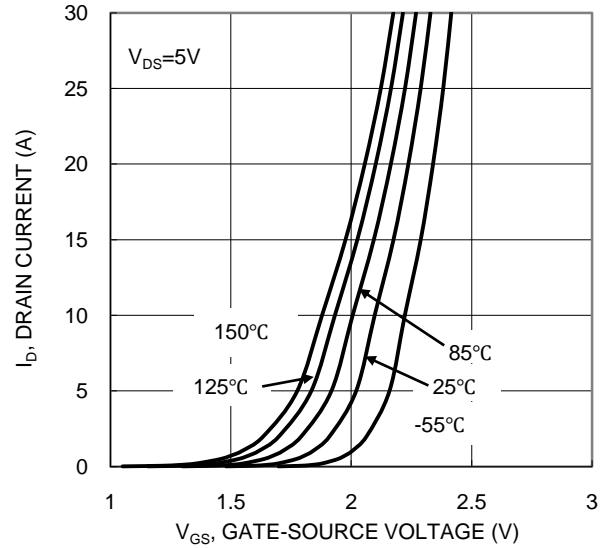


Figure 2. Typical Transfer Characteristic

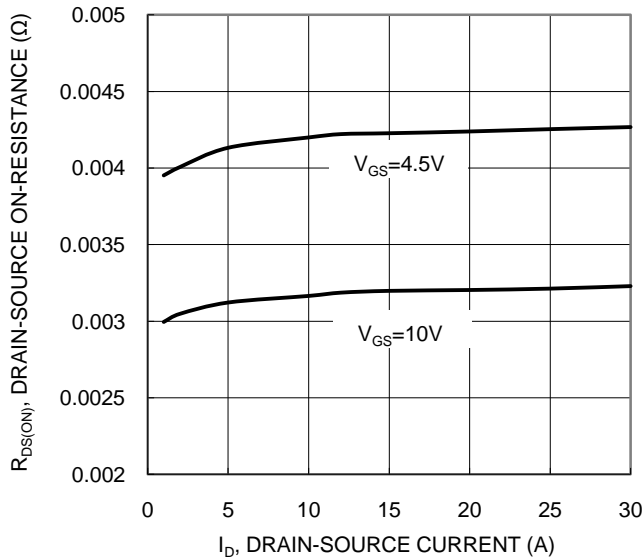


Figure 3. Typical On-Resistance vs Drain Current and Gate Voltage

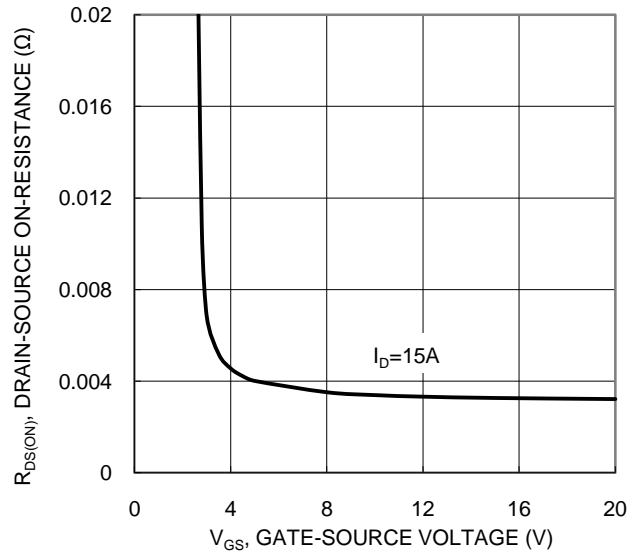


Figure 4. Typical Transfer Characteristic

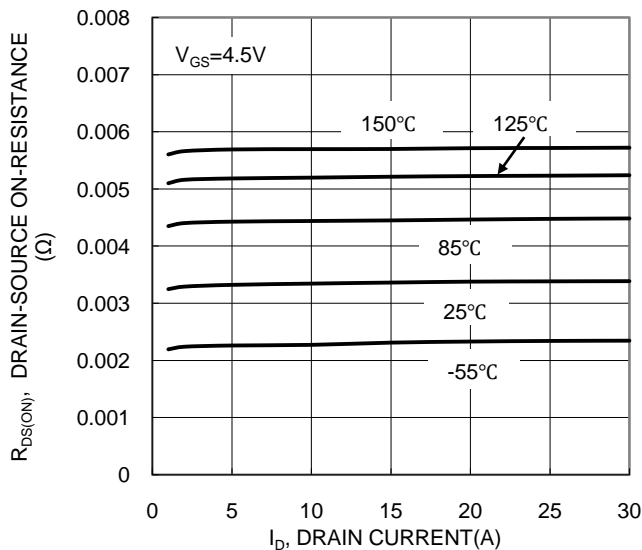


Figure 5. Typical On-Resistance vs Drain Current and Temperature

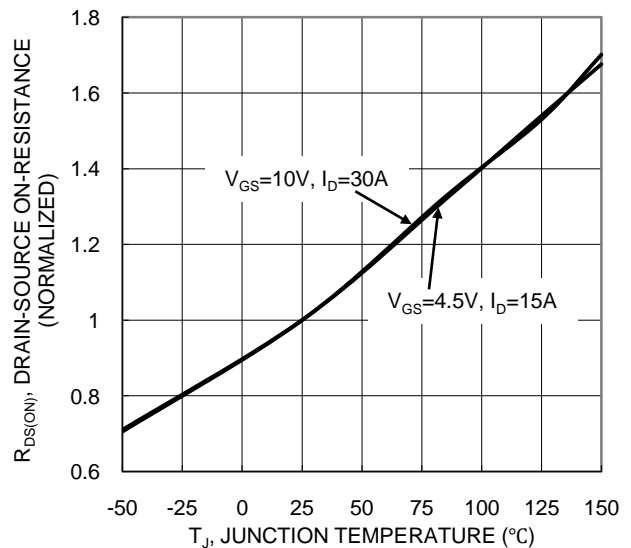
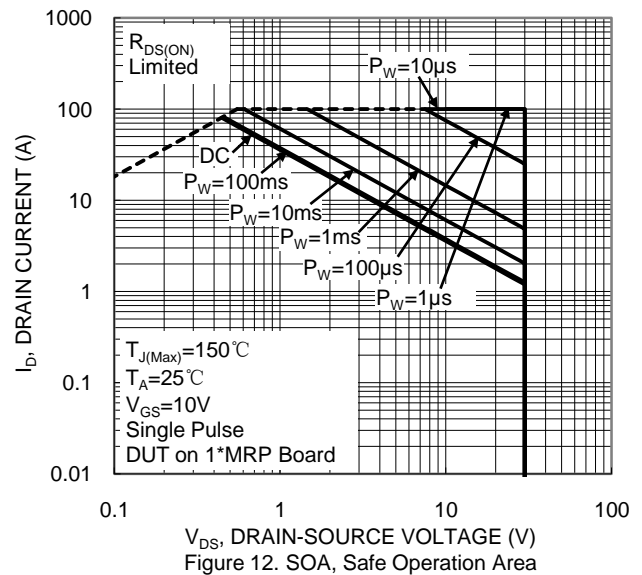
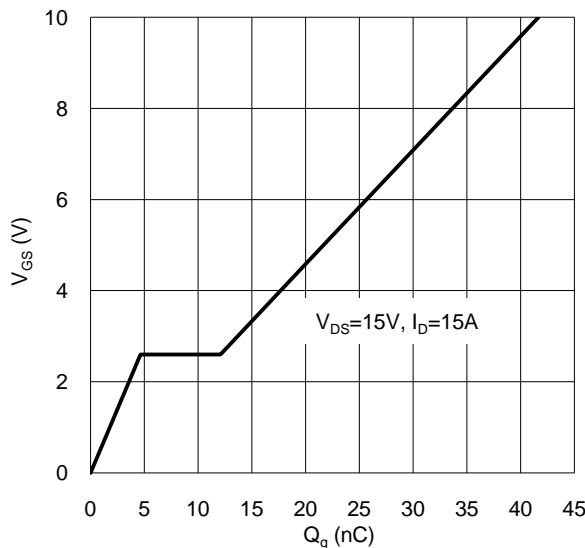
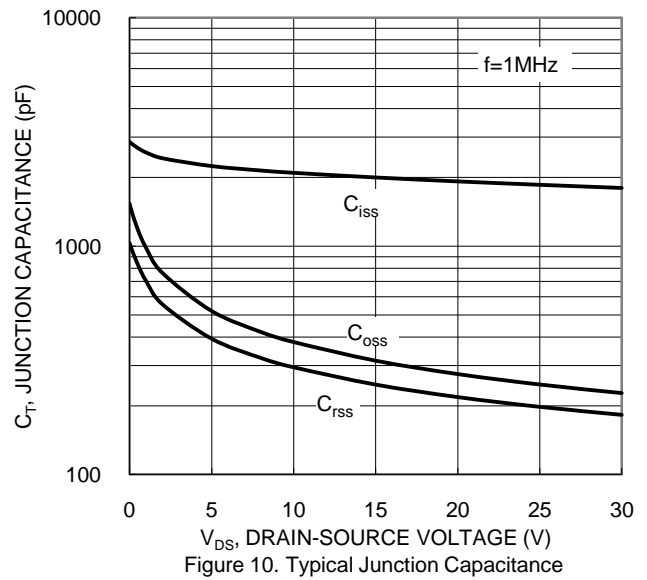
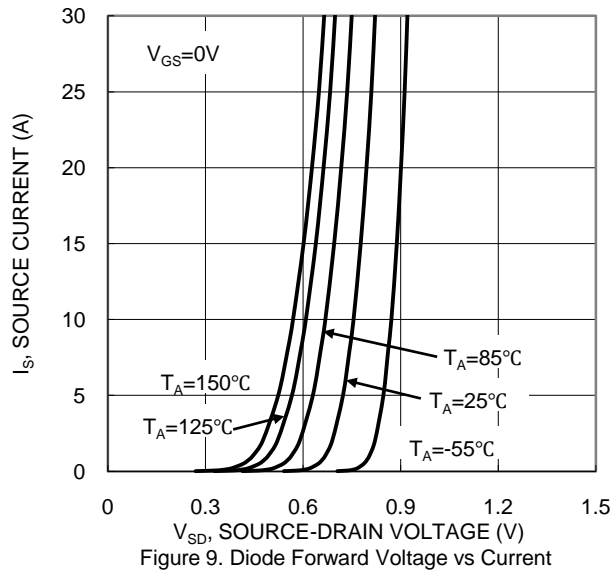
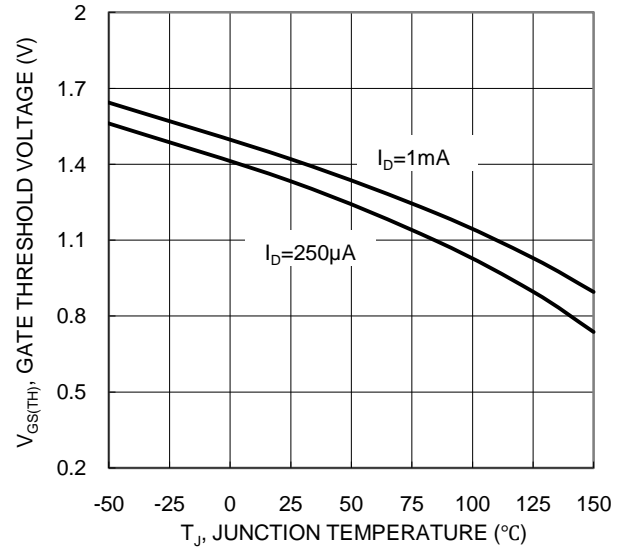
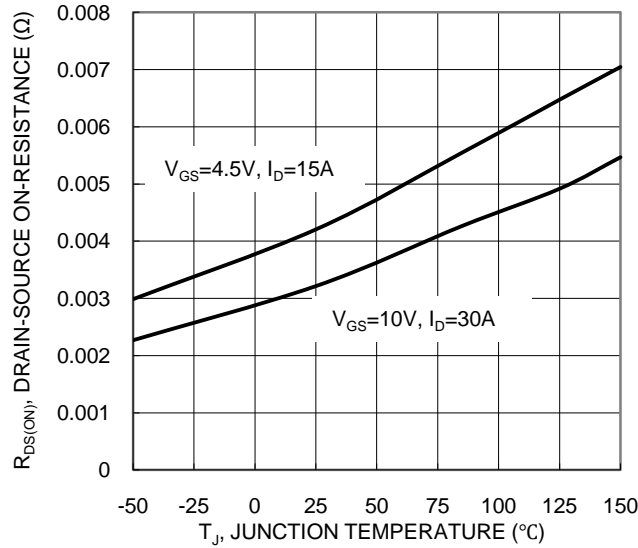


Figure 6. On-Resistance Variation with Temperature



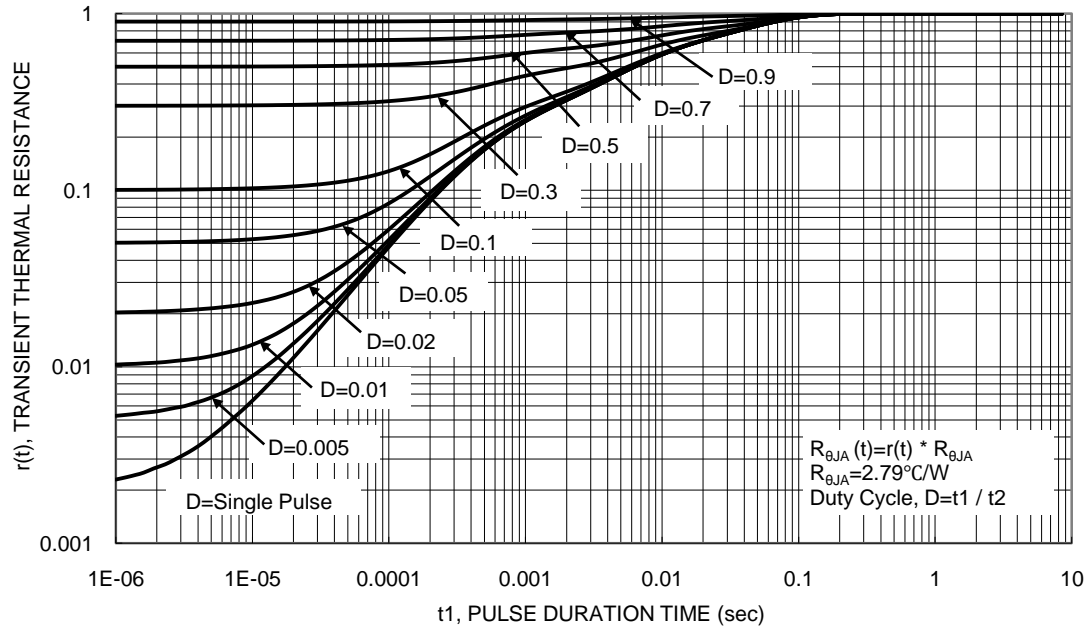
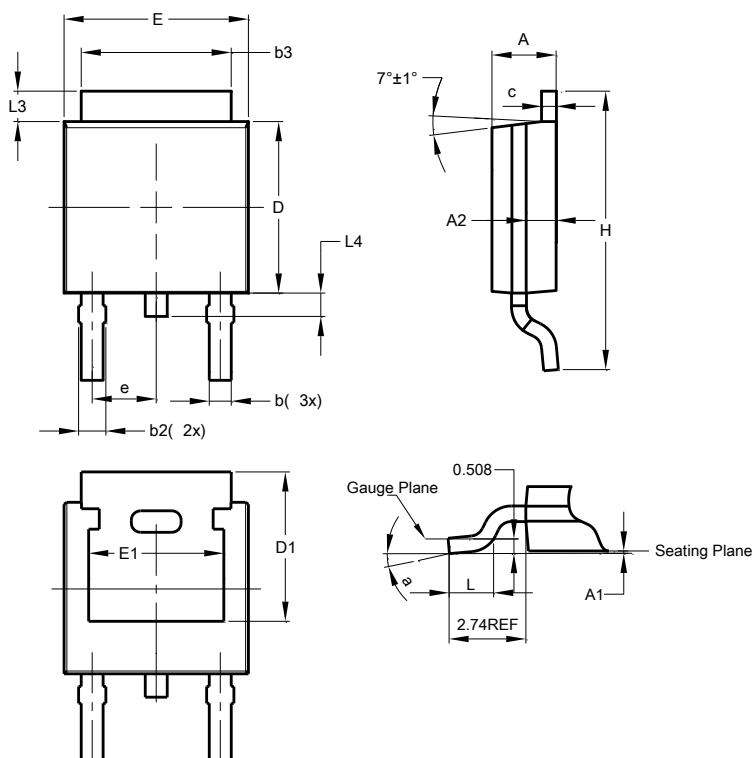


Figure 13. Transient Thermal Resistance

Package Outline Dimensions

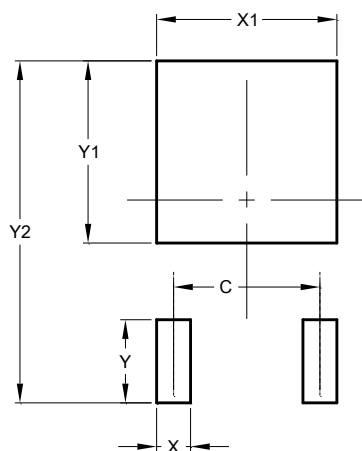
Please see <http://www.diodes.com/package-outlines.html> for the latest version.



TO252 (DPAK)			
Dim	Min	Max	Typ
A	2.19	2.39	2.29
A1	0.00	0.13	0.08
A2	0.97	1.17	1.07
b	0.64	0.88	0.783
b2	0.76	1.14	0.95
b3	5.21	5.46	5.33
c	0.45	0.58	0.531
D	6.00	6.20	6.10
D1	5.21	-	-
e	-	-	2.286
E	6.45	6.70	6.58
E1	4.32	-	-
H	9.40	10.41	9.91
L	1.40	1.78	1.59
L3	0.88	1.27	1.08
L4	0.64	1.02	0.83
a	0°	10°	-
All Dimensions in mm			

Suggested Pad Layout

Please see <http://www.diodes.com/package-outlines.html> for the latest version.



Dimensions	Value (in mm)
C	4.572
X	1.060
X1	5.632
Y	2.600
Y1	5.700
Y2	10.700

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