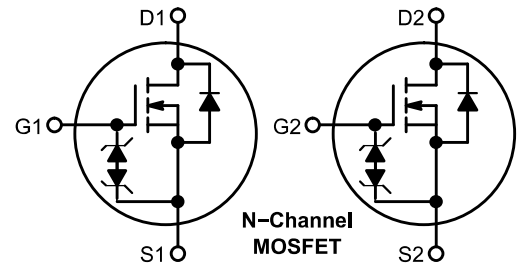


Feature

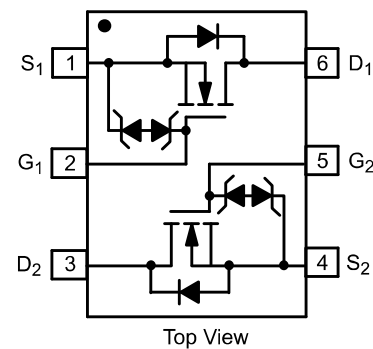
- 20V,0.7A
 $R_{DS(on)} < 250m\Omega @ V_{GS}=4.5V$
 $R_{DS(on)} < 350m\Omega @ V_{GS}=2.5V$
- Advanced Trench Technology
- Lead free product is acquired
- ESD>2KV

Application

- Interfacing Switching
- Load Switching



PINOUT: SOT-563



Package Marking and Ordering Information

Device Marking	Device	Device Package	Reel Size	Tape width	Quantity (PCS)
3154	AP3154	Sot-563	7 inch	-	8000

ABSOLUTE MAXIMUM RATINGS (T_a=25°C unless otherwise noted)

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V _{DS}	20	V
Gate-Source Voltage	V _{GS}	±10	V
Continuous Drain Current (T _a =25°C)	I _D	0.7	A
Continuous Drain Current (T _a =70°C)	I _D	0.55	A
Pulsed Drain Current	I _{DM}	2.8	A
Power Dissipation	P _D	0.25	W
Thermal Resistance from Junction to Ambient ⁽⁴⁾	R _{θJA}	420	°C/W
Junction Temperature	T _J	150	°C
Storage Temperature	T _{STG}	-55~ +150	°C

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

Parameter	Symbol	Test Condition	Min	Type	Max	Unit
Static Characteristics						
Drain-source breakdown voltage	$V_{(BR)DSS}$	$V_{GS} = 0V, I_D = 250\mu A$	20	-	-	V
Zero gate voltage drain current	I_{DSS}	$V_{DS} = 20V, V_{GS} = 0V$	-	-	1	μA
Gate-body leakage current	I_{GSS}	$V_{GS} = \pm 10V, V_{DS} = 0V$	-	-	± 10	μA
Gate threshold voltage ⁽³⁾	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = 250\mu A$	0.3	0.7	1.0	V
Drain-source on-resistance ⁽³⁾	$R_{DS(on)}$	$V_{GS} = 4.5V, I_D = 0.6A$	-	120	250	m Ω
		$V_{GS} = 2.5V, I_D = 0.5A$	-	150	350	
		$V_{GS} = 1.8V, I_D = 0.2A$	-	180	400	
Dynamic characteristics						
Input Capacitance	C_{iss}	$V_{DS} = 10V, V_{GS} = 0V, f = 1MHz$	-	60	-	pF
Output Capacitance	C_{oss}		-	15	-	
Reverse Transfer Capacitance	C_{rss}		-	5	-	
Switching characteristics						
Turn-on delay time	$t_{d(on)}$	$V_{DD} = 10V, V_{GS} = 4.5V, R_G = 10\Omega$	-	5	-	ns
Turn-on rise time	t_r		-	5	-	
Turn-off delay time	$t_{d(off)}$		-	25	-	
Turn-off fall time	t_f		-	11	-	
Total Gate Charge	Q_g	$V_{DS} = 10V, I_D = 0.25A,$ $V_{GS} = 4.5V$	-	750	-	pC
Gate-Source Charge	Q_{gs}		-	75	-	
Gate-Drain Charge	Q_{gd}		-	225	-	
Source-Drain Diode characteristics						
Diode Forward voltage ⁽³⁾	V_{DS}	$V_{GS} = 0V, I_S = 0.7A$	-	-	1.2	V
Diode Forward current ⁽⁴⁾	I_S		-	-	0.7	A

Notes:

1. Repetitive Rating: pulse width limited by maximum junction temperature
2. Pulse Test: pulse width $\leq 300\mu s$, duty cycle $\leq 2\%$
3. Surface Mounted on FR4 Board, $t \leq 10$ sec

Typical Electrical and Thermal Characteristics

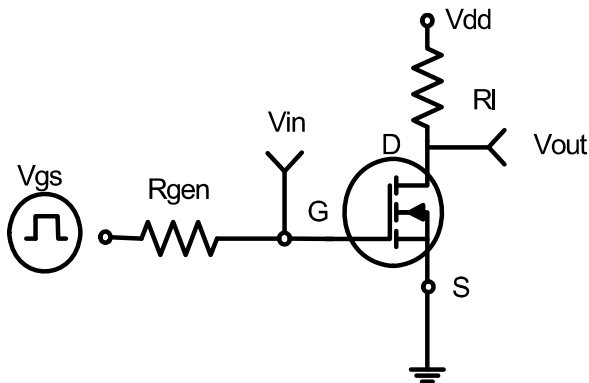


Figure 1: Switching Test Circuit

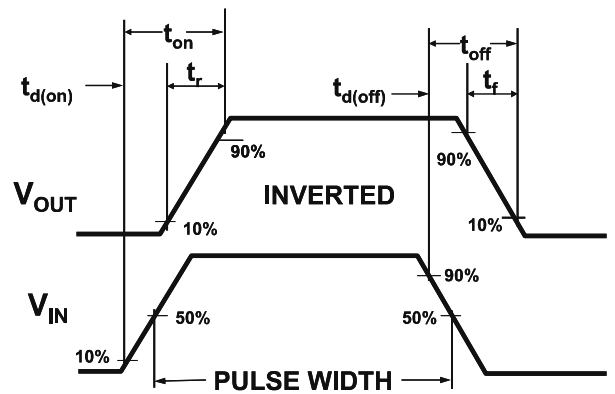


Figure 2: Switching Waveforms

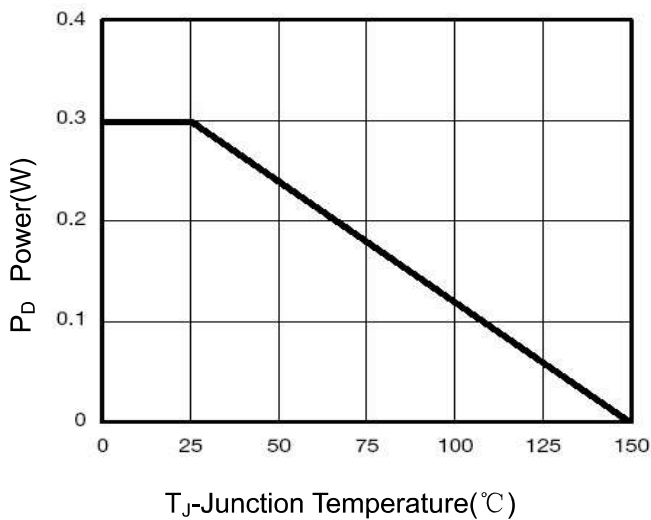


Figure 3 Power Dissipation

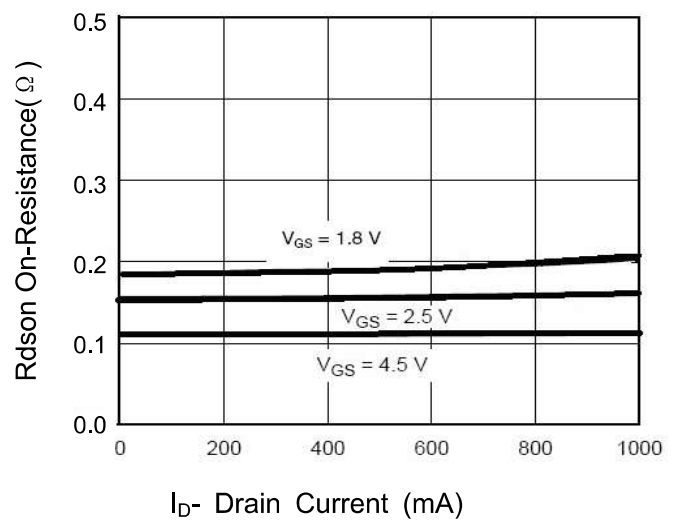


Figure 4 Drain-Source On-Resistance

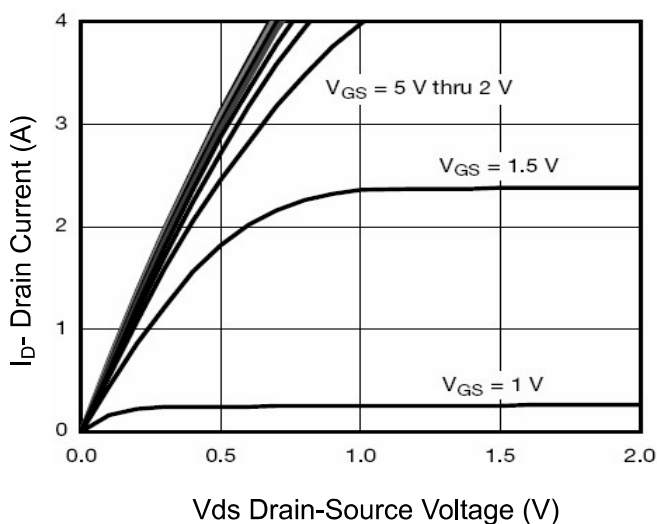


Figure 5 Output Characteristics

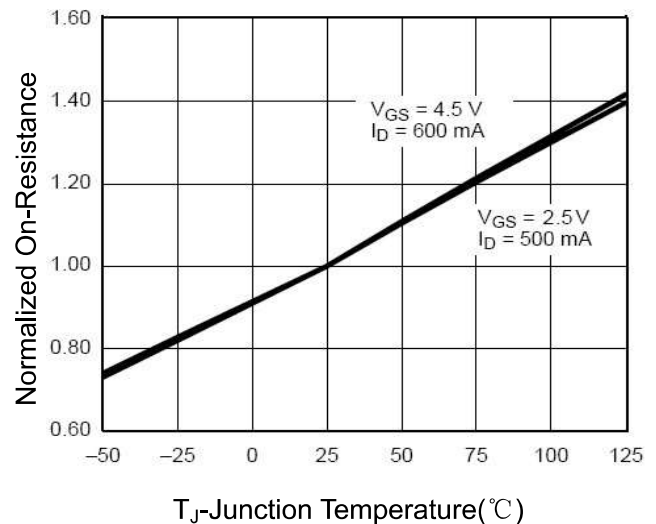


Figure 6 Drain-Source On-Resistance

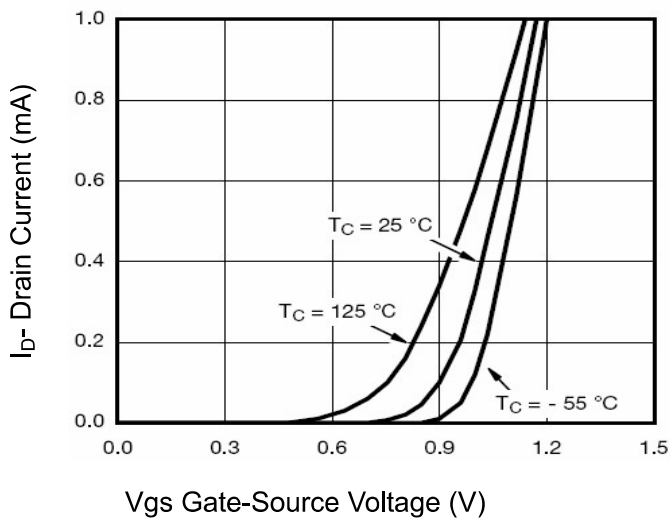


Figure 7 Transfer Characteristics

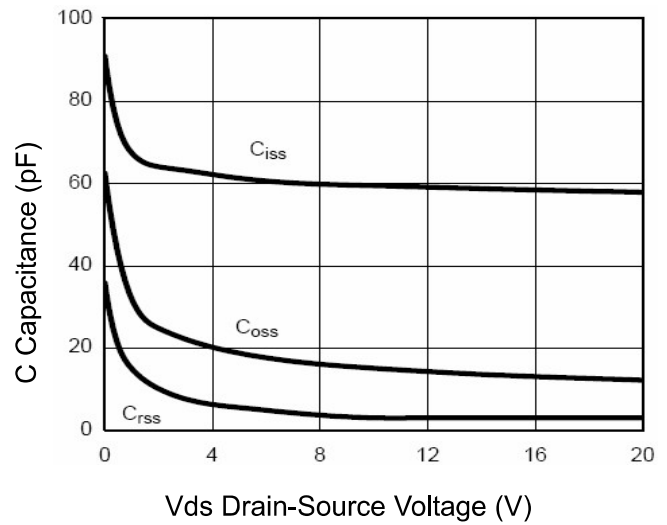


Figure 8 Capacitance vs Vds

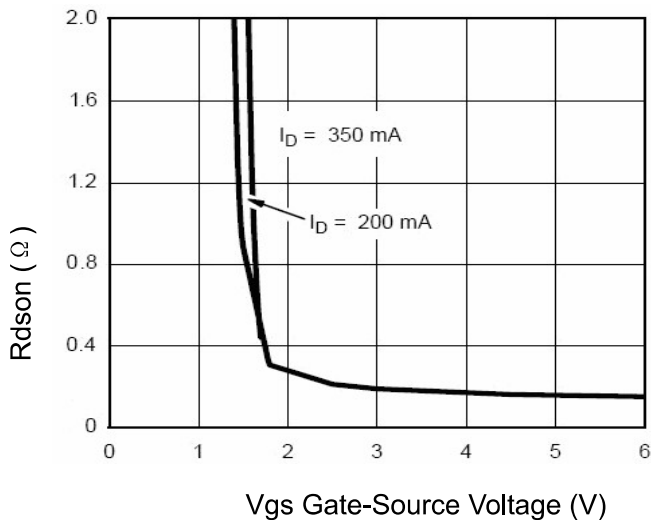


Figure 9 Rds(on) vs Vgs

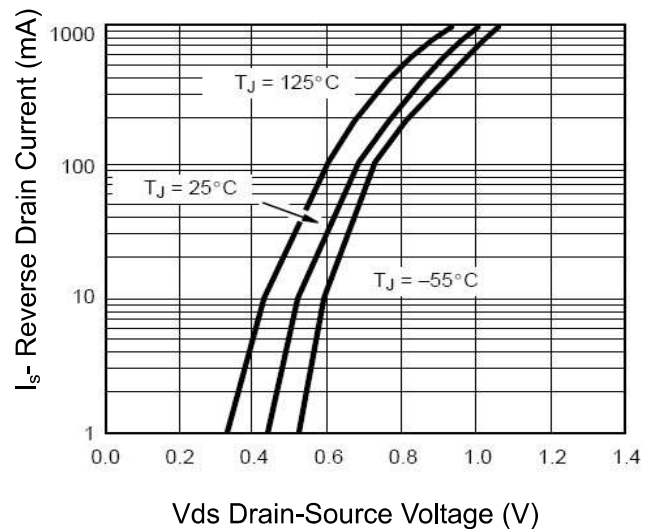


Figure 10 Source-Drain Diode Forward

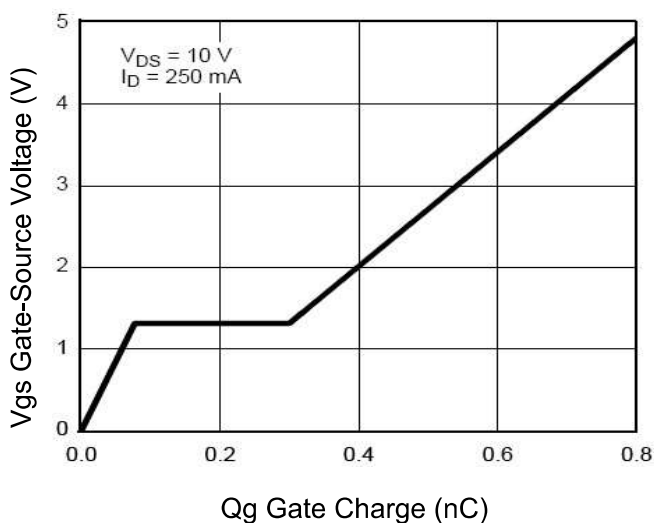


Figure 11 Gate Charge

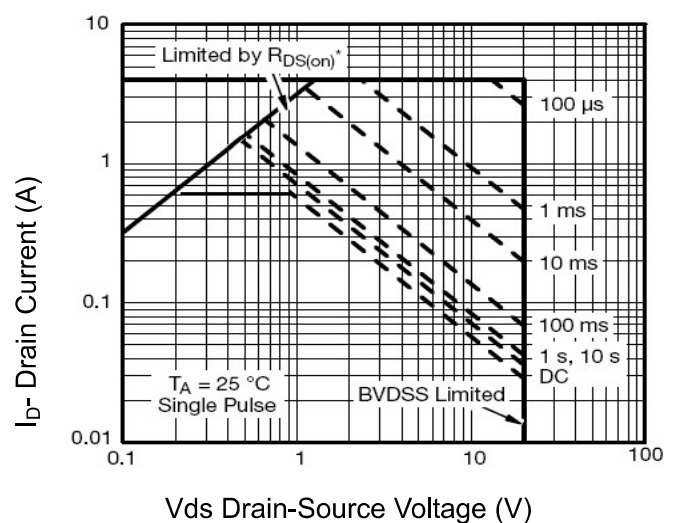


Figure 12 Safe Operation Area

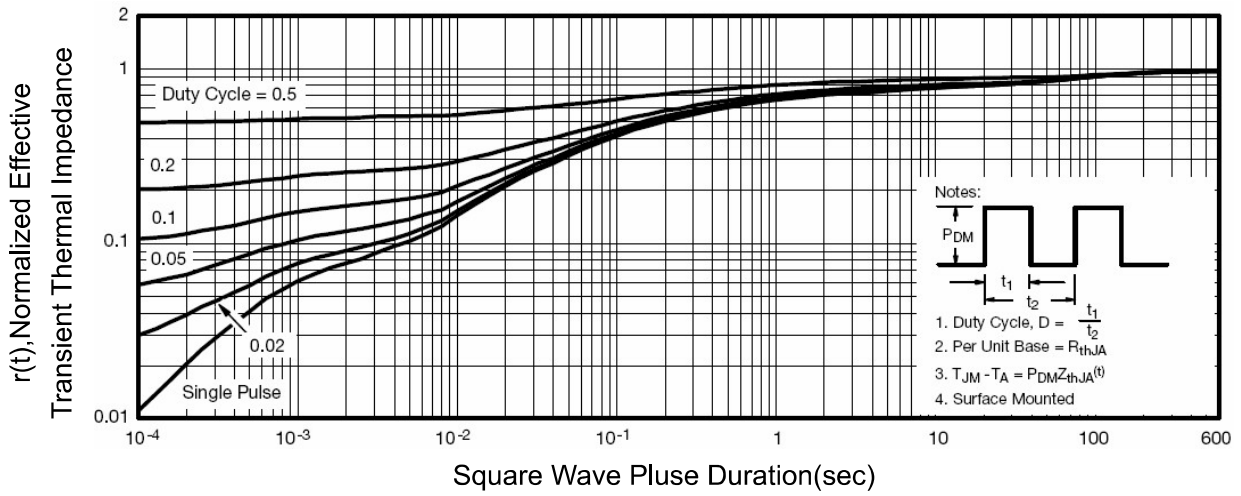
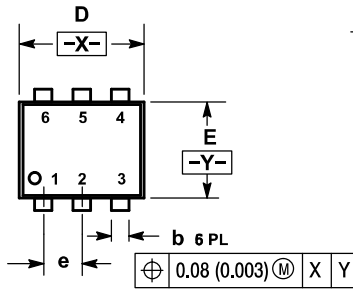


Figure 13 Normalized Maximum Transient Thermal Impedance

SOT-563 Package Information



- NOTES:
 1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
 2. CONTROLLING DIMENSION: MILLIMETERS
 3. MAXIMUM LEAD THICKNESS INCLUDES LEAD FINISH THICKNESS. MINIMUM LEAD THICKNESS IS THE MINIMUM THICKNESS OF BASE MATERIAL.

DIM	MILLIMETERS			INCHES		
	MIN	NOM	MAX	MIN	NOM	MAX
A	0.50	0.55	0.60	0.020	0.021	0.023
b	0.17	0.22	0.27	0.007	0.009	0.011
C	0.08	0.12	0.18	0.003	0.005	0.007
D	1.50	1.60	1.70	0.059	0.062	0.066
E	1.10	1.20	1.30	0.043	0.047	0.051
e	0.5 BSC			0.02 BSC		
L	0.10	0.20	0.30	0.004	0.008	0.012
HE	1.50	1.60	1.70	0.059	0.062	0.066

SOLDERING FOOTPRINT*

